

**Before the
LIBRARY OF CONGRESS
Copyright Royalty Judges**

<i>In re</i> DISTRIBUTION OF 2004, 2005, 2006, 2007, 2008 and 2009 Cable Royalty Funds	DOCKET NO. 2012-6 CRB CD 2004- 2009 (Phase II)
<i>In re</i> DISTRIBUTION OF 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008 and 2009 Satellite Royalty Fund	DOCKET NO. 2012-7 CRB SD 1999- 2009 (Phase II)

TESTIMONY OF JEFFREY S. GRAY, PH.D.

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I. QUALIFICATIONS

1. I, Jeffrey Gray, am an economist and President of Analytics Research Group, LLC (“ARG”). ARG provides expert analysis concerning economic, statistical and data issues.

2. I received training in economics and statistics at the University of Pennsylvania, where I earned a Ph.D. in economics. In 1991, I was appointed to a one-year position on the staff of the President’s Council of Economic Advisers, where I concentrated on the economic impact of government policies and regulation. From 1993 to 1997, I served on the faculty of the University of Illinois, where I taught graduate and undergraduate courses covering survey techniques, demand analysis, labor economics, and statistics. My research has been published in some of the top peer-reviewed journals in the economics profession, including *The American Economic Review*. I have received grants to pursue my research from the U.S. Department of Labor, the U.S. Department of Agriculture, and the Research Board of the University of Illinois. I have presented my research findings before a variety of seminars at universities, meetings of professional societies and conferences on specialized topics in the United States and abroad. Throughout my professional career, I have been asked to serve as a referee for leading economics journals, such as *The American Economic Review* and the *Review of Economics and Statistics*, concerning the appropriate application of economics and statistics.

3. I have served as a consultant for companies, law firms, and government agencies on a variety of economic and statistical issues related to antitrust, copyright and patent

infringement, and complex commercial disputes. My consulting work has included analyzing economic markets as well as valuing copyrighted material and assessing efficient price and advertising levels. I have been engaged by cable system operators (“CSOs”) to analyze the content and viewership of certain channels and by music performance rights owners to determine the economic value of the right to perform copyrighted music. I have provided expert testimony before the Copyright Royalty Judges (“Judges”), as well as in state, federal and international courts, and have presented my research methodology and analytical findings before the Securities and Exchange Commission, the Texas Commissioner of Insurance, and the New York and Massachusetts State Offices of the Attorney General.

4. My *curriculum vitae*, which includes a list of my publications in the last ten years, and a list of cases in which I have testified in the last four years, is attached as Appendix A. This report is based upon information currently available to me; I reserve the right to supplement this report should additional information be made available.

II. EXECUTIVE SUMMARY

- i. Programming belonging to the claimants represented by the Motion Picture Association of America, Inc. (“MPAA”) consists of thousands of unique programs, aired on stations (*i.e.*, signals) distantly retransmitted by CSOs over the years 2004 to 2009 and by satellite carriers over the years 2000 to 2009. These programs, many of which aired multiple times on these stations each year, represented millions of valuable programming minutes.

- ii. This programming is valuable insofar as it is valued by CSO and satellite carrier customers. An economically sound approach to measuring the extent to which CSO and satellite carrier customers value programming is viewership. Viewership provides a reliable and directly measurable calculation of program market value, especially because the allocation of Program Suppliers' royalties in this Phase II proceeding involves examination of relatively homogenous programming. Relying upon multiple data sources and regression analyses, it is possible to estimate viewing minutes of individual programs that aired on the distantly retransmitted signals.
- iii. To determine the value of the programs claimed by MPAA and Independent Producers Group ("IPG") within the Program Suppliers category for this Phase II proceeding, I relied on the lists of each party's program titles, as adjusted by the Judges' decisions concerning the validity and classification of MPAA's claims and IPG's claims.¹
- iv. I calculated MPAA's and IPG's shares of total program volume (*i.e.*, minutes of airtime) and shares of program viewing on randomly selected samples of stations distantly retransmitted by CSOs each year from 2004 to 2009; randomly selected samples of stations distantly retransmitted by satellite carriers each year from 2000 to 2006; and all stations retransmitted by satellite carriers from 2007 to 2009.

¹ See *Memorandum Opinion and Ruling on Validity and Categorization of Claims*, Docket Nos. 2012-6 CRB CD 2004-2009 (Phase II) and 2012-7 CRB SD 1999-2009 (Phase II) (March 13, 2015) henceforth "*March 13 Opinion and Ruling*." MPAA provided me a worksheet summarizing the Judges' decisions impacting MPAA- and IPG-represented claimants and associated program titles.

- v. For programming on stations retransmitted by CSOs:
 - a. MPAA-represented compensable programs accounted for 97.49%-98.63% of total program volume over the years 2004-2009.
 - b. MPAA-represented compensable programs accounted for 99.28%-99.60% of total program viewing over the years 2004-2009.
- vi. For programming on stations retransmitted by satellite carriers:
 - a. MPAA-represented compensable programs accounted for 98.72%-99.48% of total program volume over the years 2000-2009.
 - b. MPAA-represented compensable programs accounted for 99.54%-99.87% of total program viewing over the years 2000-2009.
- vii. Consequently, MPAA's calculated cable royalty shares are 99.60%, 99.60%, 99.34%, 99.44%, 99.28%, and 99.44% for the years 2004, 2005, 2006, 2007, 2008, and 2009, respectively. MPAA's calculated satellite royalty shares are 99.54%, 99.75%, 99.74%, 99.65%, 99.87%, 99.73%, 99.65%, 99.77%, 99.79%, and 99.57% for the years 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, and 2009, respectively.
- viii. The calculated cable and satellite royalty shares noted in (vii) above are very similar to the royalty shares that I reported previously to the Judges in my March 27, 2015 written rebuttal testimony.²

² See Written Rebuttal Testimony of Jeffrey S. Gray, Docket Nos. 2012-6 CRB CD 2004-2009 (Phase II) and 2012-7 CRB SD 1999-2009 (Phase II) at 21-22 (March 27, 2015) ("Gray WRT").

III. BACKGROUND AND OVERVIEW OF ROYALTY ALLOCATION PROCESS

5. I understand that the purpose of this Phase II proceeding is to allocate the 2004, 2005, 2006, 2007, 2008, and 2009 cable royalty funds (“2004-2009 Cable Royalties”) and the 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, and 2009 satellite royalty funds (“2000-2009 Satellite Royalties”) within the syndicated series, movies, specials, and non-team sports category (commonly known as the “Program Suppliers” category) between claimants represented by MPAA and claimants represented by IPG. The 2004-2009 Cable Royalties and 2000-2009 Satellite Royalties follow from the compulsory licenses established through Section 111 of the Copyright Act (“Section 111”) and Section 119 of the Copyright Act (“Section 119”), respectively.

6. Compulsory licenses allow CSOs and satellite carriers to retransmit broadcast television signals out-of-market (*i.e.*, on a distant basis) without the need to negotiate private license agreements with the multitude of copyright owners whose programs air on those signals. Economists refer to the time and expense associated with negotiating such private license agreements as transaction costs. Sections 111 and 119 effectively eliminate the transaction costs that would occur in an unregulated market and set the rates for the compulsory license fees paid by the CSOs and satellite carriers. These statutorily-set fees are subject to periodic adjustments.³ The licensing fees, which are paid by the CSOs and satellite carriers to the Copyright Office, are based primarily on the number

³ The periodic adjustments to the royalty fee rates were initially made by the Copyright Royalty Tribunal (“CRT”). Following abolition of the CRT, the adjustments were overseen by Copyright Arbitration Royalty Panels (“CARPs”) appointed by the Librarian of Congress. The CARPs were subsequently replaced by the current system of Judges.

and type of distant stations each CSO or satellite carrier chooses to carry.⁴ After collecting the royalty payments, the Copyright Office distributes them among eligible copyright owners of compensable programs aired on the distant signals (or their representatives),⁵ either by agreement among the claimants, or pursuant to the determination in a cable royalty distribution proceeding held before the Judges.

7. Historically, the cable and satellite royalty distribution proceedings have occurred in two phases. In Phase I, the Judges have allocated royalties among broad categories of broadcast programming claimants.⁶ In Phase II, royalties have been divided among individual claimants or their representatives *within* each of the broad program categories.

I understand that with respect to the 2004-2009 Cable Royalties and the 2000-2009 Satellite Royalties, MPAA has resolved the controversies with all of the Program Suppliers claimants except IPG.

⁴ The compulsory license fee for CSOs was based upon the number of “distant signal equivalents” (“DSEs”) that a cable system imported, valuing a distant independent station as one and a network-affiliated station or educational station as 1/4. In general, the number of DSEs carried by a CSO is multiplied by a DSE rate to establish the percentage of their gross revenues charged for importing distant television signals.

⁵ Eligible compensable programs are non-network broadcast programs aired on simultaneously retransmitted distant signals during the 2004-2009 cable royalty years and network and non-network broadcast programs aired on simultaneously retransmitted distant signals during the 2000-2009 satellite royalty years for which the copyright owner or its representative filed a timely and valid claim. Unless otherwise stated, the television programs discussed in my testimony are compensable programs within the Program Suppliers category.

⁶ For the cable Phase I Proceeding there have been eight broad categories of programming: (1) Program Suppliers; (2) Joint Sports Claimants; (3) Commercial Television Claimants; (4) Public Television Claimants; (5) Devotional Claimants; (6) Canadian Claimants Group; (7) Music Claimants; and (8) National Public Radio. With respect to satellite, there were six broad categories of programming in 2000 and 2001: (1) Program Suppliers; (2) Joint Sports Claimants; (3) Broadcaster Claimants Group; (4) Public Television Claimants; (5) Devotional Claimants; and (6) Music Claimants. Beginning with the 2002 satellite royalty year, the Public Television Claimants discontinued their participation as a claimant in Section 119 proceedings.

8. The Program Suppliers category is comprised of producers and/or distributors of syndicated series, movies, specials, and non-team sports, excluding devotional programs. For such programs to be eligible for cable compulsory license royalties, they must have been (1) licensed to and broadcast by at least one U.S. commercial television station during the calendar year in question, (2) produced by or for a broadcast station and broadcast by two or more U.S. television stations during the calendar year in question, and (3) produced by or for a U.S. commercial television station and comprised predominately of syndicated elements.⁷ Programming compensable under Section 119 also includes programs licensed to or produced by a network and retransmitted by satellite carriers.⁸

9. MPAA represents copyright owners of a variety of programs within the Program Suppliers category. In particular, I understand that there are no types of programming in the Program Suppliers category not offered as MPAA-represented programming. Examples of works claimed by MPAA-represented claimants within the Program Suppliers category in this proceeding are *Judge Judy*, *Entertainment Tonight*, *Wheel of Fortune*, *Legally Blonde*, *Seinfeld*, *NASCAR Racing*, *NBC Nightly News*, *All My Children*, and *NCIS*.⁹

⁷ See MPAA-Represented Program Suppliers' Written Direct Statement Regarding Allocation ("MPAA WDS"), Vol. III, Designated Prior Testimony, at Tab B, Written Rebuttal Testimony of Marsha E. Kessler, Addendum B (filed May 15, 2013).

⁸ See 17 U.S.C. § 119(a)(2)(A).

⁹ Lists of MPAA-represented compensable titles for the cable and satellite royalty years are attached to the Direct Testimony of Jane V. Saunders as Appendix B. See MPAA WDS, Vol. II, Designated Prior

10. I understand further that this is the first Phase II proceeding to address distribution of satellite royalty funds in the Program Suppliers category. All prior satellite distributions were resolved via settlement among the Program Suppliers parties. However, there have been several Phase II proceedings to determine the distribution of cable royalty funds. In each of those prior Phase II final awards since the awards for the 1979 cable royalties, MPAA-represented Program Suppliers have received the overwhelming majority of the cable royalties awarded to the Program Suppliers category. MPAA-represented Program Suppliers have received, *on average*, over 98% of each Phase II award in the Program Suppliers category.¹⁰ MPAA received these awards in years where multiple Program Suppliers representatives sought royalty awards.¹¹ In the recently concluded Phase II proceeding regarding distribution of the 2000-2003 cable royalty funds (“2000-2003 Phase II Proceeding”), IPG was the only other Program

Testimony, at Tabs A and B (2004-2009 Cable and 1999-2009 Satellite Phase II, Direct Testimonies of Jane Saunders).

¹⁰ MPAA Phase II awards by cable royalty year were 96.3% in 1979 (49 Fed. Reg. 20048 (May 11, 1984)), 96.9% in 1980 (48 Fed. Reg. 9552 (Mar. 7, 1983)), 96.9% in 1981 (49 Fed. Reg. 7845 (Mar. 2, 1984)), 97.5% in 1982 (49 Fed. Reg. 37653 (Sept. 24, 1984)), 98.2% in 1983 (51 Fed. Reg. 12792 (Apr. 15, 1986)), 98.475% in 1984 (52 Fed. Reg. 8408 (Mar. 17, 1987)), 99.175% in 1985 (53 Fed. Reg. 7132 (Mar. 4, 1988)), 98.5% in 1986 (54 Fed. Reg. 16148 (Apr. 21, 1989)), 99.788% in 1997 (66 Fed. Reg. 66433 (Dec. 26, 2001), *subsequently vacated*, 69 Fed. Reg. 23821 (Apr. 30, 2004)), 98.84% in 2000 (78 Fed. Reg. 64984 (Oct. 30, 2014)), 99.69% in 2001 (*Id.*), 99.64% in 2002 (*Id.*), 99.77% in 2003 (*Id.*).

¹¹ IPG was the sole Program Suppliers claimant against MPAA in the 1997 Cable Phase II Proceeding, in which the CARP awarded 99.788% of the Program Suppliers royalties to MPAA. *See* 66 Fed. Reg. 66433 (Dec. 26, 2001), *subsequently vacated*, 69 Fed. Reg. 23821 (Apr. 30, 2004).

Suppliers litigant against MPAA, and MPAA received, on average, 99.49% of each annual Phase II award.¹²

VI. PROCEDURAL BACKGROUND OF THIS CASE

11. I submitted my original written direct testimony in this proceeding in 2014, which calculated shares of the 2004-2009 Cable Royalties and 2000-2009 Satellite Royalties allocable to both MPAA and IPG based on estimates of distant viewing to MPAA and IPG claimed programs.¹³ Following my submission, the Judges issued their *March 13 Opinion and Ruling*, which resolved all claims and program classification issues between MPAA and IPG. Thereafter, as a part of my March 27, 2015 written rebuttal testimony,¹⁴ I updated my analysis to incorporate the *March 13 Opinion and Ruling*. I also testified during an April 2015 hearing regarding royalty allocation issues in this proceeding.

12. As I explained during my April 2015 testimony, my viewing estimates for MPAA and IPG presented in both my written direct testimony and my written rebuttal testimony were based on Nielsen local ratings data for the years 2000-2009, and Nielsen cable and satellite distant viewing data for 2000-2003. My viewing estimates also relied on a correlation that I established between local ratings and distant viewing for the 2000-2003

¹² See 78 Fed. Reg. at 65003.

¹³ See Amended Written Direct Testimony of Jeffrey S. Gray, Ph.D., Docket No. 2012-6 CRB CD 2004-2009 (Phase II) (July 8, 2014); Corrected Amended Written Direct Testimony of Jeffrey S. Gray, Ph.D., Docket No. 2012-7 CRB SD 1999-2009 (Phase II) (July 24, 2014).

¹⁴ See Gray WRT.

royalty years, and regression analyses to predict distant viewing for the 2004-2009 Cable Royalties and the 2000-2009 Satellite Royalties.

13. On May 4, 2016, the Judges issued their *Order Reopening The Record And Scheduling Further Proceedings* in this case (“*May 4 Order*”). In that *May 4 Order*, the Judges questioned my approach because of the lack of contemporaneous distant viewing data for the 2004-2009 time frame to support a correlation between local ratings and distant viewing during those royalty years. During the April 2015 hearing, I testified that, based on my work, I did not expect that additional viewing data would have a material impact on my royalty share estimates for MPAA and IPG.¹⁵ Notwithstanding, in the *May 4 Order* the Judges reopened the record for further proceedings, and directed the parties to submit additional written direct testimony addressing royalty allocation.

14. Following the issuance of the *May 4 Order*, MPAA obtained additional distant viewing data from Nielsen for 2008 and 2009 (cable and satellite). I re-performed my calculations using these additional viewing data. My revised estimates discussed below are consistent with the results reported in my March 27, 2015 written rebuttal testimony.¹⁶

¹⁵ See *May 4 Order* at 3(quoted 4/13/15 Tr. at 107 (Gray)).

¹⁶ See Gray WRT at 21-22.

**V. ECONOMIC VALUE OF PROGRAMMING: RELATIVE MARKET VALUE DEPENDS ON
VIEWERSHIP**

15. The total amount of funds available to the Program Suppliers category was fixed following a combination of litigation and settlement at the Phase I portion of the distribution proceeding.¹⁷ The criterion for dividing the royalty pool among claimants is the “relative market value” of the copyrighted programs.¹⁸

A. Application of the Relative Market Value Standard

16. Relative market value corresponds to the price at which the right to retransmit a program carried on a distant broadcast signal would change hands between a willing buyer (a CSO or satellite carrier) and a willing seller (a copyright owner), neither being under any compulsion to buy or to sell and both having reasonable knowledge of relevant facts.¹⁹ The “willing buyer” in this hypothetical negotiation is the CSO or satellite carrier because it chooses which signal channels to retransmit on a distant basis. Both CSOs and satellite carriers offer bundled distant signal channels, cable channels, local broadcast channels and pay-per-view channels in different packages to existing and potential

¹⁷ The Phase I distribution of the 2004 and 2005 cable royalty funds was litigated before the Judges. *See* 75 Fed. Reg. 57063, 57079 (Sept. 17, 2010). Following the proceeding, certain of the Phase I Parties appealed the Judges’ decision to the D.C. Circuit Court of Appeals. While that appeal was pending the Phase I Parties reached a confidential Phase I settlement regarding the distribution of the 2004-2009 cable royalties. *See* 78 Fed. Reg. 50113 (Aug. 16, 2013).

¹⁸ *See generally* 75 Fed. Reg. at 57063.

¹⁹ This definition is consistent with the definition of *fair market value* written by the U.S. Supreme Court: “The fair market value is the price at which the property would change hands between a willing buyer and a willing seller, neither being under any compulsion to buy or to sell and both having reasonable knowledge of relevant facts.” *United States v. Cartwright*, 411 U. S. 546, 93 S. Ct. 1713, 1716-17 (1973).

subscribers at varying prices. While CSOs and satellite carriers base their channel and carriage bundling decisions on attracting and retaining subscribers, other cost considerations factor into their decisions regarding which distant channels to retransmit and how to bundle them.²⁰

17. Because the programming at issue within the Program Suppliers category in this Phase II proceeding is relatively homogenous, it is reasonable to focus my analysis on quantifying subscriber viewing patterns in determining relative market value of individual programs carried by stations distantly retransmitted by CSOs and satellite carriers.²¹

18. The relative market value of a program in this Phase II proceeding ultimately depends upon the consumption of the programming as measured by its level of viewing by subscribers. As explained by actual Program Suppliers copyright owners, audience size – as measured by viewership – is central when making licensing deals with broadcast

²⁰ As the Judges noted in the 2004-2005 Cable Phase I Decision, “[t]he rationale for the cable operator's decision concerning which channels to group in any tier offering and at what price, may depend not only on the impact on direct subscriber revenues, but also on such factors as advertising revenues associated with cable network channels, the relative license fee costs of various cable network channels, physical capacity constraints on the number of channels that can be transmitted over a particular cable system and even the direct ownership interests of the cable system in programming content on a given cable network.” 75 Fed. Reg. at 57066. This rationale also applies to satellite carriers who, like CSOs, are program retransmitters and face the same economic goal as CSOs.

²¹ The Judges noted in the 2000-2003 Cable Phase II Decision that “[t]his relative homogeneity suggests that a rational CSO would not be as concerned with whether different programs would attract different audience segments (compared with more heterogeneous programming) and therefore such a CSO would rely to a greater extent on absolute viewership levels.” 78 Fed. Reg. at 64996. This rationale also applies to satellite carriers since the programs at issue in allocating the 2000-2009 Satellite Royalties are similarly homogeneous to the programs at issue in allocating the 2004-2009 Cable Royalties. That is, they consist of the same types of programs considered in the Cable Phase II proceeding with the addition of the same types of Program Suppliers programs airing on ABC, CBS, or NBC.

stations and cable networks in the world outside the compulsory licensing scheme.²²

Moreover, in an attempt to attract and retain customers, CSOs and satellite carriers want to carry stations with high viewership programming such as off-network syndicated television series that originally attracted a loyal following in their network runs and continue to do so in syndication.²³ They also desire to carry stations with high viewership programming, such as first-run syndicated programs that they believe will garner satisfactory audience levels.²⁴ Satellite carriers also desire to carry stations with highly viewed network programs.

19. Since this proceeding involves allocating a fixed royalty pool as part of a compulsory licensing scheme, it is entirely appropriate to consider pertinent information concerning the relative economic value of programming, namely program consumption as measured by actual program viewing. Purposefully ignoring estimates of actual viewing or ratings could lead to copyright owners of valuable programming receiving disproportionately small royalty awards compared to the relative market value of their copyrighted programming.

²² See Docket No. 2001-8 CARP CD 98-99, Written Direct Testimony of Babe Winkelman, p.7 (filed December 2, 2002) and Docket No. 2007-3 CRB CD 2004-2005, Written Direct Testimony of Alex Paen, pp. 11-12 (filed June 1, 2009).

²³ See Written Direct Testimony of Alex Paen, p. 12.

²⁴ See *id.* at pp. 5-6, 9-10.

B. Measuring Relative Market Value: Volume and Viewership

20. Subscriber preferences are revealed by which distant stations and programs they choose to watch. Below, I discuss two measures of relative economic value of programming: programming volume and programming viewership.

1. Volume

21. Holding costs constant, CSOs and satellite carriers will choose to carry distant signals with programming that will attract and retain as many subscribers as possible. In theory, the economic-optimizing (*i.e.*, rational) CSO and satellite carrier will choose to carry distant signals with the most preferred programming airing at the most preferred times. The total volume of minutes of programming retransmitted by CSOs and satellite carriers effectively represents the volume of programming purchased by the CSOs and satellite carriers. Therefore, total program volume represents economic-optimizing CSO and satellite carrier choices and provides a measure of the relative economic value of the programming to the CSOs and satellite carriers.

22. While total program volume provides useful information concerning the relative value of programming to CSOs and satellite carriers, that measure alone is not sufficient. In general, the value of programs to the CSO or satellite carrier and their subscribers may differ depending on the time slot during which the programs are aired. A 30-minute program aired during primetime might be more valuable to a CSO or satellite carrier and their subscribers than an hour-long program shown in the middle of the night. Moreover, programs of identical duration shown at the same time of day may have very different

values to CSOs, satellite carriers, and their subscribers. That is, programming volume alone does not convey a complete picture of the relative value of the programs.

2. Viewership

23. Audience size, which is determined through program viewership, is a primary interest of programmers and therefore the most direct measure of a program's relative value.²⁵ From the CSO and satellite carrier's perspective, the more a program attracts subscribers to watch and to keep watching, the more valuable the program is to the CSO and satellite carrier's net-revenue maximizing goal of retaining and growing subscriber count. From the subscriber's perspective, relatively low viewership of a given program signifies relatively low valuation of that program. Absent the bundling of programs, economic theory implies that a program with no viewership will most likely not continue to be carried.

24. Program viewership as a measure of relative market value is consistent with economic theory: a CSO or satellite carrier's willingness to pay for a particular program, or the station that airs the program, is a function of that program's contribution to the cable or satellite system's ability to attract and retain subscribers and thereby maximize net revenue.

25. My estimation approach to determine relative market value of MPAA and IPG compensable programming is consistent with the economic arguments described above. I apply a two-step approach:

²⁵ Media Programming: Strategies and Practices, 8th ed., S.T. Eastman and D.A. Ferguson, 2009, p. 40.

- First, I calculate measures of the relative volume of MPAA programming and IPG programming. This provides good, but imperfect, indicators of the relative value of the two sets of programs at issue in this proceeding.
- Second, I calculate the relative viewership of MPAA programming and IPG programming. As described above, this is the most direct measure of relative value: if costs are deemed constant, higher subscriber viewership suggests higher relative market value of the programming.

C. Data Relied Upon to Measure Relative Market Value of Phase II Programming

26. I rely upon Nielsen local ratings data, Nielsen distant viewing data, Gracenote, Inc. (“Gracenote”)²⁶ programming data, and Canadian Radio-television and Telecommunications Commission (“CRTC”) program logs, to study the volume and viewing information of compensable programs from 2000 through 2009. I also rely upon Cable Data Corporation (“CDC”) carriage data that includes information on the number of CSO and satellite system subscribers of each distantly retransmitted signal analyzed. Due to cost considerations in obtaining the Nielsen and Gracenote data for all stations distantly retransmitted by CSOs and satellite carriers in every royalty year, for most of the royalty years, I selected a sample of stations retransmitted by CSOs and satellite carriers based on a stratified random sampling methodology.²⁷ I then requested Nielsen

²⁶ Tribune Media Services merged with Gracenote, Inc. on June 12, 2014, as a division of Tribune Media Company. The division now operates under the Gracenote name.

²⁷ Lists of station samples are contained in Appendix Table C. I implemented a random sampling methodology, stratified by number of distant subscribers of the stations. Stations with many distant subscribers were selected with certainty whereas stations with few distant subscribers were selected with lower probability. As reported by CDC, for satellite there were 66, 62, and 72 distantly retransmitted

and Gracenote data for all these selected stations each year. Each year's list included both large and small stations in terms of the number of distant subscribers as well as fees generated. These data are described in further detail in the subsections below.

27. I estimated distant viewing for MPAA- and IPG-represented programs for each year for the 2004-2009 Cable Royalties and the 2000-2009 Satellite Royalties using the data from the aforementioned sources.

1. Nielsen Data

28. Nielsen is a well-regarded and highly-used source of audience measurement information in the television industry. Prior decisions by the Judges and their predecessors have concluded that Nielsen data provides “relevant” and “reliable” measures of the number of people viewing programs retransmitted on distant signals.²⁸ Historically, Nielsen has measured television viewing using both electronic meters and paper diaries. However, I understand that both due to cost and time, among other constraints, custom analyses of certain types of Nielsen data were not available for all royalty years. I rely on three types of Nielsen data relevant to the royalty years at issue for the years Nielsen was able to produce data: (1) Nielsen Distant Viewing Diary data

stations in 2007, 2008, and 2009, respectively. Thus, for these years, I requested data for all the stations rather than select samples. For ease of exposition, I refer to each year's selection of stations as a “sample,” even though satellites 2007-2009 samples reflect all distantly retransmitted stations.

²⁸ See, e.g., 78 Fed. Reg. 64984, 64986 and 64996 (Oct. 30, 2013); 55 Fed. Reg. 5647 (Feb. 16, 1990); 1998-99 Cable Phase I CARP Report (Oct. 21, 2003), at 44; 1990-92 Cable Phase I CARP Report (May 31, 1996), at 84.

for 2000-2003, (2) Nielsen Local Ratings data for 2000-2009, and (3) Nielsen Distant Viewing Household Meter data for 2008-2009.

a. Nielsen Distant Viewing Diary Data For 2000-2003

29. The Nielsen Distant Viewing Diary data is the result of Nielsen's custom analyses of its diary viewing data from Nielsen's random sample of households throughout the United States during "sweeps" months.²⁹ For each sweeps week, the selected households complete diaries of the stations watched in their homes, for up to five television sets. Nielsen requires its households to collect information for 24 hours a day over the seven-day period, reflecting programs viewed within each quarter hour segment. Nielsen's diary viewing analyses are of MPAA's selected CSO and satellite carrier retransmitted station samples.³⁰ Nielsen then extracted from its database the estimates of viewing to each station for each quarter-hour throughout the sweeps months.³¹ These Nielsen Distant Viewing Diary data measure all viewing by households to the stations in the samples.

²⁹ Nielsen processes diaries from households across the country covering the February, May, July, and November "sweeps months."

³⁰ For more detail regarding the 2000-2003 cable sample stations, *see* MPAA WDS, Vol. III, Designated Prior Testimony, Tab A, (2000-2003 Cable Phase II, Direct Testimony of Marsha Kessler) at 11-12. The Nielsen satellite data contains some viewing for the first quarter of 2004. I rely on all the data available, but for ease of exposition refer to the data as covering 2000-2003. For more detail regarding the 2000-2003 satellite diary sample stations, *see* MPAA WDS Vol. II, Designated Prior Testimony, Tab B (1999-2009 Satellite Phase II, Direct Testimony of Jane Saunders) at Appendix C. No custom analyses of Nielsen diary data are currently available covering after the first quarter of 2004 through 2009.

³¹ *See* MPAA WDS, Vol. III, Designated Prior Testimony, Tab D (2000-2003 Cable Phase II, Direct Testimony of Paul Lindstrom ("Lindstrom Testimony")) at 4-5 for more detail describing methodology

b. Nielsen Local Ratings Data For 2000-2009

30. Nielsen Local Ratings data is collected by electronic meters attached to television sets in Nielsen's randomly selected households in various geographic markets across the U.S. ("Nielsen metered markets").³² These data include information on the number and percentage of households in the station's local market tuned to the station for each quarter hour for every day throughout the year, for each of the 2000-2009 royalty years.

c. Nielsen Distant Viewing Household Meter Data For 2008-2009

31. The Nielsen Household Meter data is based on a random sample of people in the United States. Similar in collection methodology to the Nielsen Local Ratings data, Nielsen National Household Meter data is collected by electronic meters attached to television sets together with individual meters held by individual household members. Based upon the national data they collected, Nielsen performed custom analyses to calculate the level of distant viewing by cable and satellite households to television stations, respectively, for each fifteen-minute interval (quarter hour) of the day, 7 days per week, and 365 days per year for both 2008 and 2009.³³ From the total metered viewing, Nielsen extracts the distant viewing to my samples of stations for 2008 and 2009.

2. Gracenote Data

32. The Gracenote data is a compilation of information about each program airing on each station throughout each day, including when the program aired; the station the

³² Nielsen provided Local Ratings data for those stations in Nielsen metered markets. A list of U.S. metered markets is contained in Appendix Table B.

³³ See MPAA WDS, Vol. I, Written Direct Testimony of Paul Lindstrom.

program aired on; whether it was local, network, or syndicated; the program title; the episode title (if applicable); the type of program (movie, game show, etc.); and so on. I excluded as non-compensable programs airing on WGN's local feed ("WGN") that were not simultaneously broadcast on WGN's national feed ("WGNA"). Also, for my analysis related to stations distantly retransmitted by CSOs, I excluded as non-compensable all network programming (that is, all programs broadcasted on ABC, CBS, or NBC).

3. CDC Data

33. The CDC data are information catalogued by CDC from statements of accounts ("SOAs") that CSOs and satellite carriers filed with the Licensing Division of the Copyright Office semi-annually. These data include information regarding the distant signals carried, the number of subscribers to each signal, and the estimate of fees generated by each signal during years covered by this proceeding.³⁴

34. Based on the CDC data, the number of stations that were distantly retransmitted by satellite carriers varied each year between 62 and more than 650 during 2000-2009. In contrast, over 1,000 stations were distantly retransmitted by CSOs each year from 2004 to 2009.³⁵

³⁴ See, Direct Testimony of Jonda Martin.

³⁵ Consistent with Nielsen's ratings and viewing measurement approaches, split signals such as KABC and KABC-DT are aggregated and considered a single station.

4. CRTC Program Logs

35. The CRTC requires stations broadcasting in Canada to submit monthly program logs (“CRTC Program Logs”).³⁶ These CRTC Program Logs include information such as station call signs, the program title and actual start time and end time of each program transmitted by each Canadian station, and an indicator for the country of origin of each program. I understand that, with respect to distribution of the 2004-2009 Cable Royalties only, programming that aired on Canadian stations which originated from the United States is compensable as Program Suppliers programs.³⁷ I used these CRTC Program Logs to determine the country of origin and compensability of programs claimed by both IPG and MPAA which aired on the Canadian stations.

D. Economic Analysis: Estimating and Imputing Distant Viewing

36. To determine the relative market value of MPAA-represented and IPG-represented programs that aired on stations that were distantly retransmitted by CSOs and satellite carriers, one would calculate the relative distant viewing of those programs. I am able to provide a reasonable estimate of relative distant viewing levels by relying upon the data sources described in the previous section. As I explain later in this testimony, I establish a mathematical relationship between local ratings and distant viewing levels for the years the data are available using various program characteristics during those years. I then

³⁶ See CRTC website for more information, <http://www.crtc.gc.ca/>.

³⁷ I understand that programming airing on Canadian stations that originated outside the United States are compensable only in the Canadian Claimants Group category, which is not at issue in this proceeding. See MPAA WDS, Vol. III, Designated Prior Testimony, Tab B, (Written Rebuttal Testimony of Marsha E. Kessler (filed May 15, 2013)).

extrapolate that mathematical relationship using a regression analysis to estimate distant viewing for all compensable programs each year for the 2004-2009 Cable Royalty years and the 2000-2009 Satellite Royalty years.

E. Relative Market Value of MPAA versus IPG Programming

37. Considering the various datasets described above, my analysis demonstrates the breadth of MPAA programming and the extent to which it is retransmitted in distant markets by CSOs and satellite carriers.

1. Number of Compensable Programs, Program Retransmissions, and Volume Statistics

38. The tables below present summary statistics comparing MPAA-claimed and IPG-claimed compensable programs in the following categories: number of compensable programs; number of retransmissions of such programs, and the volume (in minutes) of programming that aired on stations distantly retransmitted by CSOs and satellite carriers.

39. Table 1 reports statistics regarding the number of compensable programs retransmitted by CSOs and satellite carriers. From 2004 to 2009, between 25,727 and 35,142 unique MPAA-claimed compensable programs aired on the stations retransmitted by CSOs.³⁸ In contrast, for the same period and the same stations, only between 654 and 954 unique IPG programs aired. Similarly, between 27,354 and 33,662 unique MPAA-claimed compensable programs aired on the stations retransmitted by satellite carriers from 2000 to 2009, while only between 461 and 969 unique IPG-claimed compensable programs aired on the same stations over the same time periods. Therefore, on average,

³⁸ I define a “unique program” at the episode level. Thus, *e.g.*, different episodes of the series *The Simpsons* are each defined as a unique program.

over all the years relevant to this proceeding, there were approximately 36 times as many MPAA-represented unique compensable programs as IPG's on stations distantly retransmitted by CSOs, and approximately 48 times as many MPAA-represented unique compensable programs as IPG's on stations distantly retransmitted by satellite carriers.

Table 1: MPAA- and IPG-Claimed Unique Compensable Programs.				
	<i>Cable</i>		<i>Satellite</i>	
Year	MPAA	IPG	MPAA	IPG
2000			27,747	969
2001			27,354	865
2002			30,197	506
2003			32,207	513
2004	29,342	928	33,662	643
2005	27,548	954	32,818	609
2006	26,965	781	30,721	620
2007	25,727	654	30,123	549
2008	26,306	695	30,389	461
2009	35,142	774	31,019	614
<i>Note: Calculations based on random samples of distantly retransmitted stations for CSOs for 2004-2009, random samples of distantly retransmitted stations for satellite carriers for 2000-2006, and all stations distantly retransmitted by satellite carriers in 2007-2009.</i>				

40. In addition to representing the copyright owners of far more programs than IPG, the MPAA-represented programs were retransmitted more often than IPG-represented programs by both CSOs and satellite carriers. Table 2 below shows that the number of annual MPAA-represented program retransmissions by CSOs varied between 397,212 and 577,300 during the years 2004 through 2009. By comparison, IPG-claimed

retransmissions for the same period which varied between 7,821 and 11,216. Meaning, on average, each MPAA-claimed programs was retransmitted approximately 17 times while each IPG-claimed program, on average, was retransmitted approximately 12 times by CSOs.³⁹ A similar disparity is seen in programming distantly retransmitted by satellite carriers as each MPAA program was retransmitted approximately 17 times while each IPG-claimed program, on average, was retransmitted approximately 8 times.

Table 2: MPAA- and IPG-Claimed Program Retransmissions.				
	<i>Cable</i>		<i>Satellite</i>	
Year	MPAA	IPG	MPAA	IPG
2000			592,816	10,861
2001			592,494	7,658
2002			573,635	7,177
2003			556,064	4,589
2004	526,835	7,821	555,310	5,366
2005	577,300	9,605	544,258	3,630
2006	462,225	10,836	511,962	5,376
2007	522,832	11,216	416,469	3,253
2008	397,212	9,628	399,030	2,259
2009	446,697	8,779	469,064	3,043
<i>Note: Calculations based on random samples of distantly retransmitted stations for CSOs for 2004-2009, random samples of distantly retransmitted stations for satellite carriers for 2000-2006, and all stations distantly retransmitted by satellite carriers in 2007-2009.</i>				

³⁹ These estimates are calculated by dividing the average number of retransmissions by the average number of unique compensable programs aired.

41. Just as there is a wide disparity in the amount of retransmitted programming claimed by MPAA compared to that claimed by IPG, there are large differences in the volume of programming, in minutes, retransmitted by CSOs and satellite carriers. Table 3 below demonstrates how MPAA's volume in minutes of retransmitted programming far exceeds IPG's over both the 2004 to 2009 cable royalty years and the 2000 to 2009 satellite royalty years.

Table 3: Total Volume (In Minutes) of MPAA and IPG-Claimed Program Retransmissions.				
	<i>Cable</i>		<i>Satellite</i>	
Year	MPAA	IPG	MPAA	IPG
2000			27,475,059	356,003
2001			27,154,480	234,682
2002			26,613,233	220,850
2003			25,997,729	161,997
2004	20,834,498	289,846	26,098,836	166,433
2005	22,422,723	408,607	25,363,941	133,005
2006	18,097,354	373,142	23,956,981	219,524
2007	20,614,187	494,112	19,306,430	152,675
2008	15,710,185	404,036	18,464,792	121,082
2009	17,828,996	323,776	21,870,339	176,379
<i>Note: Calculations based on random samples of distantly retransmitted stations for CSOs for 2004-2009, random samples of distantly retransmitted stations for satellite carriers for 2000-2006, and all stations distantly retransmitted by satellite carriers in 2007-2009.</i>				

42. Programs varied in duration, from shows less than thirty-minutes to movies and specials several hours long. Table 3 above reports that MPAA's compensable programs ranged from between 15.7 and 22.4 million minutes of distantly retransmitted air time on

retransmitted by CSOs during 2004 to 2009. Similarly, satellite carriers retransmitted between 18.5 and 27.5 million minutes of MPAA programming each year between 2000 and 2009. In contrast, IPG-claimed programs covered far less air time, between 289,846 and 494,112 minutes on stations retransmitted by CSOs during 2004 to 2009 and between 121,082 and 356,003 minutes on stations retransmitted by satellite carriers.

43. Thus, my analysis of program volume of distantly retransmitted stations demonstrates that MPAA compensable programming constitutes the vast majority of retransmitted (*i.e.*, purchased) programming in the Program Suppliers category, both by CSOs and satellite carriers. MPAA represented compensable programs accounted for 98.63%, 98.21%, 97.98%, 97.66%, 97.49%, and 98.22% of total volume of Program Suppliers programming distantly retransmitted by CSOs over the years 2004, 2005, 2006, 2007, 2008, and 2009, respectively. Similarly, with respect to programming distantly retransmitted by satellite carriers over the years 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, and 2009, MPAA represented compensable programs accounted for 98.72%, 99.14%, 99.18%, 99.38%, 99.37%, 99.48%, 99.09%, 99.22%, 99.35%, and 99.20% of IPG and MPAA total volume, respectively.

44. However, as described earlier, the relative minutes, or volume, of programming retransmitted provides an imperfect metric of the relative value of the two sets of programs. The volume measure does not take into account what time of day the retransmission took place, the number of cable subscribers who had access to the distantly retransmitted broadcast, or the number of households who had access to the

programming who even watched the show. The share of viewing minutes provides a superior measure of relative value.

2. Program Viewing Statistics

45. Relative distant viewing provides a reasonable measure of a program's relative economic value. However, as I described earlier, due to cost and time, among other limitations, distant viewing data were not available for all of the years. Nonetheless, available to me were distant viewing information for the years 2000 to 2003 in the Nielsen Distant Viewing Diary data and the years 2008 to 2009 in the Nielsen Distant Viewing Household Meter data for both cable and satellite subscribers.

46. In order to determine relative viewing minutes throughout each royalty year, I employed multiple regression analysis techniques and applied my analysis to the lists of actual MPAA- and IPG-claimed compensable programs. As I mentioned earlier in this testimony, my calculations incorporate the Judges' prior decisions concerning the validity and classification of MPAA's and IPG's claims.

47. The regressions rely upon 2000-2003 and 2008-2009 information to calculate the mathematical relationship between distant viewing and (1) local ratings for the program, (2) the total number of distant subscribers of that station, (3) the time of day the program aired by quarter hour, (4) the type of program aired, (5) the station affiliation the program aired on, and (6) the aggregate total fees paid by CSOs or satellite carriers in year the program aired. The regressions demonstrate that there is a positive and statistically

significant relationship between local ratings and distant viewing.⁴⁰ The higher the ratings of a particular program on a national or local basis, all else equal, the higher the level of distant viewing. The regressions also show that the total number of a station's distant subscribers, the time of day the program aired, the type of program aired, the station affiliation the program aired on, and total fees paid, each significantly affect distant viewing.

48. Based on the mathematical relationship between viewing over the 2000-2003 and the 2008-2009 time periods and local ratings as well as the other factors described above, I calculated distant viewership for all programs carried by stations in the sample for each quarter hour of every day, and for each cable and satellite royalty year at issue in this proceeding.⁴¹

49. I calculate MPAA's share of total distant viewing as the sum of estimated household viewing of MPAA-represented programs divided by the sum of the estimated distant household viewing of IPG or MPAA represented programs. Table 4 below reports MPAA's distant viewing share for each cable and satellite royalty year. The tables also present the 95% confidence intervals associated with each viewership share

⁴⁰ Appendix Tables D-1 and D-2 provide results from the regressions. The econometric models better predict distant viewing with separate regressions for WGN and non-WGN stations.

⁴¹ For programs broadcasting outside Nielsen metered markets I replaced their unmeasured local ratings with the average local ratings of retransmitted programs of the same type broadcasting during the same time of day. The Gracenote data assigns each program to a unique program type category such as "Game Show," "Movie," "Network Series," or "Talk Show." I define six time of day categories by the time intervals 5 AM – 9 AM, 9 AM – 4 PM, 4 PM – 8 PM, 8 PM – 11 PM, 11 PM – 2 AM, and 2 AM – 5 AM. Programs with missing local ratings receive the average local ratings of programs of the same program type broadcast at the same time of day. For example, a Network Series program broadcasting at 9 PM with no local ratings information is given the average local rating of all Network Series programs broadcasting between 8 PM and 11 PM.

calculation.⁴² These viewership shares correspond to reasonable cable and satellite royalty shares.

Table 4: MPAA Cable and Satellite Distant Viewing Shares of Program Suppliers Programming		
	<i>Updated MPAA Share of Viewing with 95% Confidence Intervals</i>	
<i>Year</i>	<i>Cable</i>	<i>Satellite</i>
2000		99.54 (99.52 – 99.56)
2001		99.75 (99.73 – 99.76)
2002		99.74 (99.72 – 99.76)
2003		99.65 (99.62 – 99.67)
2004	99.60 (99.50 – 99.64)	99.87 (99.86 – 99.88)
2005	99.60 (99.38 – 99.61)	99.73 (99.71 – 99.74)
2006	99.34 (99.15 – 99.35)	99.65 (99.63 – 99.67)
2007	99.44 (99.19 – 99.47)	99.77 (99.76 – 99.78)
2008	99.28 (99.26 – 99.32)	99.79 (99.78 – 99.80)
2009	99.44 (99.39 – 99.48)	99.57 (99.55 – 99.58)

50. As reported in the second column in Table 4, MPAA’s cable viewership shares are 99.60% in 2004, 99.60% in 2005, 99.34% in 2006, 99.44% in 2007, 99.28% in 2008, and 99.44% in 2009.⁴³ As reported in the final column in Table 4, MPAA compensable

⁴² The confidence intervals are calculated applying the bootstrap methodology. See Efron, B.; Tibshirani, R. (1986). “Bootstrap Methods for Standard Errors, Confidence Intervals, and Other Measures of Statistical Accuracy.” *Statistical Science* 1(1), 54-77.

⁴³ These estimates of MPAA’s distant viewing shares are very similar to the estimated viewing shares I presented to the Judges earlier in this proceeding, which relied solely on the 2000-2003 Nielsen Diary data as the basis for my correlation with the Nielsen Local Ratings data. Those earlier shares were 99.59% in 2004, 99.55% in 2005, 99.32% in 2006, 99.28% in 2007, 99.19% in 2008, and 99.39% in

programming accounted for 99.54%, 99.75%, 99.74%, 99.65%, 99.87%, 99.73%, 99.65%, 99.77%, 99.79%, and 99.57% of the total Program Suppliers programming retransmitted by satellite carriers over the years 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, and 2009, respectively.⁴⁴

V. CONCLUSION: ROYALTY SHARE ALLOCATIONS

51. My analysis indicated that relative program viewership provides a reasonable and reliable measure of the relative economic value of distantly retransmitted programming. Therefore, to determine what I believe to be reasonable and reliable MPAA and IPG 2004-2009 Cable Royalties, I analyzed data concerning program volume and program viewing patterns of a randomly selected set of stations each year from 2004 to 2009. Based upon information currently available, my analysis indicates that the value MPAA compensable programming accounted for 99.60%, 99.60%, 99.34%, 99.44%, 99.28%, and 99.44% of the total 2004-2009 Cable Royalties for the years 2004, 2005, 2006, 2007, 2008, and 2009, respectively. IPG shares of the 2004-2009 Cable Royalties are 0.40%, 0.40%, 0.66%, 0.56%, 0.72%, and 0.56% for the years 2004, 2005, 2006, 2007, 2008, and 2009, respectively.

2009. *See* Gray WRT at 21-22. The similarity of these estimated shares confirms the soundness and reliability of my earlier methodology for calculating distant viewing shares for 2004 to 2009.

⁴⁴ As in the case with cable, these estimates of MPAA's distant viewing shares are very similar to the estimated viewing shares I presented to the Judges earlier in this proceeding, which relied solely on the 2000-2003 Nielsen Diary data as the basis for my correlation with the Nielsen Local Ratings data. In those earlier estimates, MPAA's compensable programming accounted for 99.65%, 99.77%, 99.80%, 99.61%, 99.87%, 99.78%, 99.73%, 99.74%, 99.77%, and 99.58% of the total Program Suppliers programming. *See* Gray WRT at 21-22. Again, the similarity of these estimates validates the soundness and reliability of my earlier methodology for calculating distant viewing shares for 2000 to 2009.

52. Similarly, to determine what I believe to be reasonable and reliable MPAA and IPG 2000-2009 Satellite Royalties, I analyzed data concerning program volume and program viewing of a randomly selected set of stations retransmitted by satellite carriers each year from 2000 to 2006 and all stations retransmitted from 2007 to 2009. Based upon information currently available, my analysis indicates that the value MPAA compensable programming accounted for 99.54%, 99.75%, 99.74%, 99.65%, 99.87%, 99.73%, 99.65%, 99.77%, 99.79%, and 99.57% of the total Program Suppliers programming over the years 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, and 2009, respectively. MPAA therefore has an implied royalty share in those amounts for each year. IPG has the remaining Satellite royalty shares of 0.46%, 0.25%, 0.26%, 0.35%, 0.13%, 0.27%, 0.35%, 0.23%, 0.21%, and 0.43% over the years 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, and 2009, respectively.

APPENDIX A: CURRICULUM VITAE

Jeffrey S. Gray, Ph.D.

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Education & Background Summary

Ph.D., Economics, University of Pennsylvania
B.A., Economics (with honors) University of California Santa Cruz

Dr. Gray has over 20 years of experience in economic and statistical consulting, survey design, sampling methodologies, and complex database analytics. He is an authority on economic markets, statistical methods, and economic damages. His research has been published in some of the top peer-reviewed journals in the economics profession including *The American Economic Review* and the *Journal of Human Resources*. Dr. Gray has presented his findings before a variety of seminars at universities, meetings of professional societies and conferences on specialized topics in the United States and abroad. Dr. Gray has received recognition and financial support to pursue his research from the U.S. Department of Labor, the U.S. Department of Agriculture, and the Research Board of the University of Illinois. Throughout his career Dr. Gray has served as referee for professional journals assessing the appropriate application of economics and statistics.

Dr. Gray has conducted studies for corporations, government agencies and law firms on a variety of economic and statistical issues. Dr. Gray has served as a testifying expert on behalf of both plaintiffs and defendants addressing class certification, liability and/or damages issues. He has provided written or oral expert testimony in state, federal, and international courts and presented analytical findings before the Securities and Exchange Commission, the Texas Commissioner of Insurance, the Government of Singapore, and the New York and Massachusetts State Offices of Attorney General.

In addition to leading the economic and statistical consulting practices at Huron Consulting Group and Deloitte Financial Advisory Services LLP, Dr. Gray has served on the staff of the President's Council of Economic Advisers and on the faculty of the University of Illinois where he taught graduate and undergraduate courses covering consumer demand analysis, labor economics, and statistics. He earned a Ph.D. in economics from the University of Pennsylvania.

Professional Experience

- Analytics Research Group LLC, Washington, DC
 - President, Washington DC, 2013 – Present
- Deloitte Financial Advisory Services LLP, Washington, DC
 - Principal and Leader of Economics Practice, Washington DC, 2010 - 2013
- Huron Consulting Group, Boston, MA
 - Managing Director & National Leader, Economics, 2006 – 2009
- Deloitte Financial Advisory Services LLP/Deloitte & Touche LLP: FAS, Boston, MA
 - Principal-In-Charge, Boston, MA, 2004 – 2006
 - Economist & Principal, Economic Consulting, 2002 – 2006
- Arthur Andersen LLP, Boston, MA & Chicago, IL
 - Director, Economic Consulting, 2001 – 2002
 - Economist, 1999 – 2002
- Welch Consulting, College Station, TX
 - Senior Economist, 1996 – 1999
- University of Illinois, Urbana, IL
 - Assistant Professor, 1993 – 1997
- President's Council of Economic Advisors, Washington, DC
 - Staff Economist, 1991 – 1992
- University of Pennsylvania, Philadelphia, PA
 - Research, Teaching Assistant and Instructor, 1989 – 1991

Professional Affiliations

- American Economic Association
- American Finance Association
- American Statistical Association

Referee Responsibilities

- American Economic Review, Demography, Economic Inquiry, International Economic Review, Eastern Economic Journal, Journal of Human Resources, Journal of Labor Economics, Review of Economics and Statistics, Social Science Quarterly, Sociological Forum.

Publications and Presentations (Prior 10 Years)

- Jeffrey S. Gray. *Class Action Litigation: Working with Economics and Statistics Experts*, invited presentation, Washington, DC, September 2013.
- Jeffrey S. Gray. *Patent Infringement Damages: Approaches and Trends*, Moderated Panel on Intellectual Property in the Life Sciences, May 2010.
- Jeffrey S. Gray. *Institutional Investors: Protecting Your Assets – Prudent Investing*, Moderated Panel on Fiduciary Litigation Issues, February 2009.
- Jeffrey S. Gray. *Subprime Fallout: Prudent Investing & Economic Damages*. Professional Liability Underwriting Society Conference, Boston, MA. October 2008.
- Jeffrey S. Gray with Carl Tannenbaum and Laurence Kotlikoff, *Was the Credit Crisis Foreseeable?* Moderated Panel, April 2008.
- Eugene Canjels, Jeffrey S. Gray and Michel J. Vanderhart. *Does Everyone Overstate the Number of Hours They Work? An Examination of Survey Response Bias Among Salaried and Hourly Workers*, White Paper, April 2005.

Expert Testimony & Affidavits (Prior 4 Years)

- In the Matter of Distribution of the 2004, 2005, 2006, 2007, 2008 and 2009 Cable Royalty Funds, before the Copyright Royalty Judges, Washington D.C., Doc No. 2012-6 CRB CD 2004-2009 (Phase II), and In the Matter of Distribution of the 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008 and 2009 Satellite Royalty Funds, before the Copyright Royalty Judges, Washington D.C., Doc No. 2012-7 CRB CD 1999-2009 (Phase II), expert affidavits and trial testimony (2014-2015).
- *In the Matter of Distribution of the 2000, 2001, 2002, and 2003 Cable Royalty Funds*, before the Copyright Royalty Judges, Washington D.C., Doc No. 2008-2 CRB CD 2000-2003 (Phase II), expert affidavits and trial testimony (2013).
- *Michael Brown, Brian Singer et al v. Canadian Imperial Bank of Commerce*, proceeding under the Class Proceedings Act, 1992, Court File No. 08-CV-00365119CP, Ontario Superior Court of Justice, Canada; expert affidavit and oral cross-examination (2011).
- *Wayne B. Gould et al v. Western Coal Corporation, et al.*, proceeding under the Class Proceedings Act, 1992, Court File No. CV-09-391701-00CP, Ontario Superior Court of Justice, Canada; two expert affidavits (2011).

APPENDIX B: NIELSEN METERED MARKETS

<i>Metered Market</i>	<i>Years in Metered Market Data</i>
New York	2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009
Los Angeles	2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009
Chicago	2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009
Philadelphia	2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009
Dallas-Ft. Worth	2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009
San Francisco-Oak-San Jose	2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009
Boston (Manchester)	2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009
Atlanta	2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009
Washington, DC (Hagrstwn)	2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009
Houston	2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009
Detroit	2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009
Phoenix (Prescott)	2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009
Seattle-Tacoma	2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009
Tampa-St. Pete (Sarasota)	2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009
Minneapolis-St. Paul	2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009
Denver	2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009
Miami-Ft. Lauderdale	2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009
Cleveland-Akron (Canton)	2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009
Orlando-Daytona Bch-Melbrn	2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009
Sacramnto-Stkton-Modesto	2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009
St. Louis	2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009
Portland, OR	2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009
Pittsburgh	2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009
Charlotte	2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009
Indianapolis	2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009
Raleigh-Durham (Fayetteville)	2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009
Baltimore	2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009
San Diego	2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009
Nashville	2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009
Hartford & New Haven	2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009
Salt Lake City	2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009
Kansas City	2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009
Cincinnati	2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009
Columbus, OH	2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009
Milwaukee	2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009
San Antonio	2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009
West Palm Beach-Ft. Pierce	2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009
Birmingham (Ann and Tusc)	2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009
Las Vegas	2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009
Norfolk-Portsmouth-Newport News	2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009
Albuquerque-Santa Fe	2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009
Oklahoma City	2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009
Greensboro-High Point-Winston-Salem	2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009
Jacksonville	2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009
Louisville	2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009
Memphis	2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009
Buffalo	2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009
Providence-New Bedford	2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009
New Orleans	2000, 2001, 2002, 2003, 2004, 2005, 2007, 2008, 2009
Austin	2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009
Richmond-Petersburg	2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009
Ft. Myers-Naples	2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009
Dayton	2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009
Greenville-Spartanburg-Asheville-Anderson	2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009
Knoxville	2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009
Tulsa	2003, 2004, 2005, 2006, 2007, 2008, 2009

APPENDIX C-1: STATIONS SAMPLED FOR CABLE ANALYSIS

2000		2001		2002		2003	
Station	Distant Subscribers	Station	Distant Subscribers	Station	Distant Subscribers	Station	Distant Subscribers
WGN	34,764,247	WGN	32,026,304	WGN	34,016,201	WGN	35,464,425
WPIX	2,533,703	WPIX	2,500,563	WPIX	2,098,975	WPIX	2,154,652
WSBK	750,861	WUAB	758,308	WUAB	749,972	WUAB	784,586
KTLA	689,106	KTLA	657,028	KTLA	625,663	KTLA	624,007
WUAB	686,344	WSBK	612,404	WSBK	612,541	WSBK	586,989
WWOR	559,362	WPHL	570,492	WPHL	512,848	WNBC	582,450
WKBD	452,604	WNBC	552,515	KPTV	504,363	WPHL	503,032
WPHL	450,064	WWOR	478,579	KATU	468,610	WWOR	436,202
WNBC	349,939	WPSG	467,238	KGW	452,492	KTNC	411,988
WVTV	245,157	KTNC	429,758	WNBC	449,897	WKRN	364,006
WXIX	226,434	WKBD	350,591	WWOR	441,863	WPSG	359,173
KGO	221,344	WKRN	296,304	WKBD	399,417	WKBD	358,241
WISN	220,088	WLTV	257,914	KTNC	383,312	WTFX	276,475
KCAL	218,850	WBNS	256,989	WBNS	347,325	WXIX	250,274
WBAL	213,882	KGO	248,703	WPSG	314,878	KGO	240,200
WTFX	211,275	KCAL	242,168	WTFX	272,141	KCAL	238,015
WPSG	208,306	WTFX	241,563	WFAA	264,447	WFAA	200,204
WTMJ	207,459	WJZ	225,087	WSYX	259,795	WJZ	198,236
KMSP	205,550	WNYW	222,444	WXIX	240,684	WBNS	197,936
WFAA	198,577	WXIX	218,803	KCAL	221,142	WVTV	197,129
KWGN	197,143	WFAA	199,945	KGO	218,042	WNYW	192,837
WXIA	191,030	WBAL	195,589	WKRN	213,231	WSB	188,740
WSB	190,672	WSB	189,041	WEWS	207,543	WPVI	181,634
WJZ	180,682	KMSP	181,734	WVTV	206,307	KWGN	176,367
WNYW	173,735	KWGN	169,397	WSB	197,550	KCOP	164,099
WKRN	166,231	KCRA	163,480	WPVI	195,895	WDIV	163,636
WBNS	162,185	WXIA	162,596	WNYW	191,661	WXIA	162,029
KTNC	162,006	WCAU	156,620	KMSP	188,185	WCAU	156,605
KCNC	161,005	WDIV	155,727	KWGN	185,704	KTVU	154,702
KRON	149,310	WPVI	147,761	WXIA	180,749	WISN	154,038
WCFT	147,516	WISN	142,572	WJW	170,369	KCRA	149,337
WCAU	141,773	KCOP	142,258	WCAU	170,063	WTMJ	147,024
KCOP	137,843	KNBC	141,094	WPXS	166,827	KMSP	136,194
KICU	137,800	WVTV	138,847	WSFJ	166,723	WBZL	135,961
KMGH	128,369	KYW	137,885	WUNI	165,914	KICU	135,938
WPVI	123,639	KDKA	137,565	KCRA	165,105	KYW	134,624
KCRA	122,560	WBZL	136,508	WWHO	163,878	WBAL	130,800
KUSA	122,133	KABC	135,587	WTMJ	146,743	WLTV	129,542
KSHB	119,437	WSYX	134,740	WISN	146,743	KNBC	128,282
WUNI	118,845	KICU	133,536	WJZ	146,008	WUSA	128,189
KNBC	116,086	WTMJ	131,048	KYW	145,369	WSYX	122,467
WDCA	115,683	KRON	130,215	WDIV	144,219	KCNC	118,062
WAGA	114,327	WDCA	130,060	WBAL	133,044	WRIC	116,010
WBZ	112,220	WUSA	122,325	KNBC	131,177	WDCA	112,831
WIAT	110,372	KCNC	119,009	KABC	126,326	WBZ	104,965
KDKA	108,842	WRIC	116,702	KCNC	124,263	KDKA	102,629
KXTX	105,349	KXTX	108,510	KCOP	123,555	KABC	101,391
KYW	102,752	WTAE	105,937	WIAT	119,473	WTAE	101,021
KPLR	102,555	KTVU	105,831	WDCA	114,543	WWBT	98,994
KMBC	100,962	WWBT	100,388	WLVI	113,289	WGCL	93,712
KABC	99,800	WBZ	98,162	KDKA	112,871	KBWB	93,414
KSDK	97,472	KMGH	97,413	KMGH	108,284	WIAT	93,269

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WSYX	96,244	WIAT	93,774	KMBC	101,489	WHDH	92,685
WGCL	94,877	KUSA	91,596	KTVU	98,504	WCVB	91,640
WDIV	91,758	KPLR	91,516	KSHB	98,312	WPXI	91,471
WPXI	90,263	KSHB	87,485	WGCL	94,267	KMGH	89,251
WLVI	90,105	WGCL	85,359	KICU	93,945	KRON	88,693
WBPX	89,613	KSDK	85,041	WTAE	92,015	KMBC	88,600
WUSA	87,231	KBWB	85,013	KPLR	91,789	KSHB	85,050
KPIX	87,172	KPTV	84,374	KUSA	90,416	WTTG	83,913
WTAE	85,244	WTTG	84,136	WBZ	87,207	WTVB	82,405
KTVU	83,405	WMAR	79,669	WUSA	82,558	KPLR	82,199
KPTV	83,225	KMBC	78,638	WCVB	82,246	WLKY	80,924
KBWB	79,924	WRC	78,372	WFLD	81,933	KUSA	80,921
WFLD	78,535	WCMH	77,987	KSDK	81,485	KSDK	78,239
KTXL	72,748	WFLD	77,731	WRIC	78,977	WFTC	77,544
WBNX	61,259	WCVB	75,885	WTVB	77,281	WCMH	77,336
WCCO	59,697	WTVB	75,523	KSL	76,995	WHBQ	66,356
KBHK	59,310	WPXI	73,923	WMAQ	67,620	WCWB	66,115
KWTV	58,551	KTRK	57,476	KTXL	66,371	WTBS	63,141
WMAR	57,345	WTVR	57,204	WBBM	60,169	WCCO	60,591
WLKY	55,231	KSL	56,509	WTVB	57,417	WBBM	59,880
KXAS	54,991	KPIX	54,190	WPGH	53,022	WAGA	54,706
KHWB	54,581	WBNX	53,963	KXAS	51,177	WNEG	52,053
KCBS	49,215	WLVI	50,542	KDFW	49,742	WMUR	50,435
WNPA	48,683	WDRB	49,377	WDAF	47,797	WREG	45,607
KTTV	48,492	WFMZ	46,008	WFTC	47,612	WBNX	44,008
WPGH	47,223	WHBQ	40,431	WMC	44,025	WZTV	43,875
WNDS	46,731	WCFT	40,395	WLTW	43,678	WDAF	43,273
WBBM	46,374	WVTM	40,287	WRTV	42,813	KOMO	42,092
WDAF	42,864	KOMO	38,429	KUVS	42,448	KATU	41,066
WRAL	42,734	KCTV	37,996	WTTV	42,010	KBHK	38,543
WWL	40,389	WRAL	36,401	WRC	37,766	WLVI	37,691
KOMO	37,571	WDWB	35,801	KOIN	35,364	WRAL	35,540
KTRK	35,005	WTTE	31,313	WPLG	33,829	WABM	33,687
WCWB	28,465	KING	31,270	WFXT	31,637	WPLG	31,688
WVPX	21,382	KTVK	29,959	WXTV	29,750	KPDX	31,238
WWPX	21,093	KMOV	29,404	WPXN	29,670	WXPX	29,752
KDNL	20,326	KENS	29,243	KOAT	28,054	KOAT	28,913
WMUR	18,564	WNPA	28,376	WVLT	27,233	KNXV	27,787
WABC	18,103	KOCO	24,055	KOKH	22,212	WBKI	24,385
WITI	18,043	WXYZ	22,172	WHAG	18,827	WPXD	23,583
WHMB	17,297	WWPX	21,744	WLWT	18,281	WUNI	23,033
WFTV	16,753	WCNC	16,762	WXII	17,899	WWPX	22,720
WGBO	16,595	WTBS	16,625	KDFI	15,974	KSTP	20,916
WTOG	16,445	WUTF	13,444	WPCB	14,751	KDFI	15,189
WTTE	16,308	KTXA	13,021	KSMO	14,174	WNUV	12,617
WUPL	16,123	KAUT	12,960	WGBO	13,593	KHWB	12,455
WPXL	16,085	KCCO	10,881	KEYE	13,476	WFMY	11,568
WSAH	15,557	WJBK	9,666	KTVI	12,727	WCNC	11,284
KNXV	15,051	KMWB	9,347	KTVK	11,822	WDTN	9,113
WKYC	14,649	WPLG	7,878	WFMY	11,637	KCWE	8,877
WCGV	11,364	KDFI	7,540	WTTK	11,625	WSKY	8,781
KGTW	11,076	WSFJ	7,377	KNXV	11,412	KSTC	7,775
KFMB	11,076	KTTV	7,095	WSPA	9,504	WRBU	7,695
WJW	10,969	WPWR	6,826	KNVA	8,477	WIVB	7,201
WCBS	9,907	KRIV	6,669	KVDA	8,469	WHNO	6,587
KPDX	7,658	WGBO	6,599	WPWR	7,523	WMBC	6,527
WSCV	6,331	WUPN	6,511	WDBB	5,327	WTOG	6,309
WTHR	5,423	KUTP	5,861	WBBH	5,289	WUTV	6,151
WTJP	5,299	KPPX	5,827	WNPX	4,990	WPWR	5,980

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WJBK	5,201	WDBB	5,337	WPPX	4,857	WPXP	5,877
WUXP	3,170	WUPA	3,521	WAVY	2,212	WUPN	5,174
WUPN	2,980	WNPX	2,774	KVEA	1,548	WKOI	4,789
WXLV	2,941	WLNE	2,722	WAWS	758	WOFL	3,099
KUVS	2,371	WKMG	2,613	WJYS	529	WVBT	2,997
WNCN	805	WTBY	1,534	WPXJ	383	WWJ	2,013
WFTS	658	KVBC	1,278	WFOR	333	WOPX	1,279
WAXN	648	WFLA	1,152			KZJL	1,202
KSTU	352	WCPO	922			WAWS	671
KNLC	140	KWEX	920			WFDC	232
WPXV	85	WGNO	439			WATE	187

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2004		2005		2006		2007	
Station	Distant Subscribers	Station	Distant Subscribers	Station	Distant Subscribers	Station	Distant Subscribers
WGN	38,274,172	WGN	39,286,518	WGN	39,795,298	WGN	41,514,827
WPIX	1,816,450	WPIX	1,546,337	WPIX	1,209,157	CBUT	1,044,369
CBUT	1,000,121	CBUT	1,019,966	CBUT	1,027,499	WPIX	960,689
WUAB	667,606	WUAB	847,741	WNBC	908,508	WUAB	657,565
KTLA	573,888	KTLA	594,440	WUAB	862,015	CKSH	564,066
WNBC	554,502	CKSH	571,062	CKSH	576,120	WPHL	450,257
WPHL	512,760	WNBC	502,782	KTLA	558,866	KTLA	438,168
WWOR	430,505	WPHL	461,929	WPHL	463,595	WNBC	436,530
CBET	428,200	WWOR	443,277	WSYX	448,250	KTNC	387,303
WSBK	407,943	CBET	433,579	KTNC	403,345	CBET	372,036
WKBD	398,357	KTNC	389,766	CBET	384,830	WWOR	357,947
KTNC	397,849	WKBD	389,749	WBNS	366,951	WRNN	323,828
WPSG	383,701	WSBK	372,770	WJW	365,449	CBMT	295,145
WBNS	367,329	WPSG	342,592	WWOR	363,759	WSBK	292,838
WSEE	362,822	WTFX	282,600	WPSG	330,817	WIS	283,524
CKSH	358,227	WSYX	268,567	WSBK	326,879	WPSG	282,999
WKRN	344,610	WIS	251,852	WRNN	308,322	WTFX	277,983
WIS	334,674	WSEE	249,943	WIS	286,035	CFTO	221,729
WTFX	311,642	KGO	243,986	CBMT	283,989	WBNS	218,029
WSYX	271,882	WPGH	240,003	WKBD	275,063	CBLT	215,582
WXIX	250,338	WCMH	227,675	WTFX	264,723	WXIX	210,409
KGO	234,915	KCAL	226,018	WCMH	244,553	WFAA	209,141
KCAL	227,569	WFAA	219,462	WPGH	242,334	KCAL	204,052
WEWS	214,365	WSB	217,466	WNWO	223,773	WJZ	199,706
WLIO	210,817	WXIX	215,010	KCAL	220,548	WSB	189,286
WSB	209,537	CFTO	214,295	WTVG	211,792	KICU	184,076
WFAA	206,167	WBNS	209,862	CFTO	210,700	KCRA	177,950
WJZ	198,532	CBLT	207,673	WXIX	210,010	KGO	163,030
CFTO	195,832	WTVG	198,887	WSB	206,233	WTOL	162,016
WVTV	195,277	WJW	194,976	WEWS	206,217	KCOP	156,769
WCAU	192,862	WJZ	193,844	CBLT	204,409	KBNT	153,443
CBLT	186,918	WDLI	192,423	KGO	204,053	WPVI	152,096
KCOP	182,836	WGGN	190,462	WJZ	202,699	WDIV	146,113
WKYT	181,034	KCRA	183,096	WDLI	198,443	KATV	141,948
KCRA	178,694	WKRN	177,508	WGGN	196,531	WSEE	138,345
WJW	175,242	WNYW	168,483	WLIO	182,461	WNYW	138,329
WNYW	172,492	KCOP	161,408	KCRA	179,549	WSFL	134,771
WDIV	172,276	WCAU	158,051	WSEE	178,395	WVXF	129,187
WPVI	170,925	WXIA	152,498	WWHO	173,913	WVTV	111,360
WWHO	170,805	WPVI	150,458	WSFJ	171,835	KNBC	110,599
WSFJ	167,989	KATV	148,960	WTLW	166,912	WSYX	107,649
KYW	167,161	WDIV	147,991	WCAU	162,964	KTHV	104,016
KWGN	164,294	KTVU	144,125	KCOP	162,340	WKBD	98,264
WTLW	163,304	WVTV	142,364	WPVI	148,186	WTVD	93,541
WXIA	156,030	WKYT	140,070	KTVU	141,259	CHLT	93,357
WTMJ	144,799	WBZL	138,142	KATV	140,891	WCCO	88,334
WISN	144,799	WTMJ	137,896	KICU	139,610	WMCN	88,026
WUSA	132,611	WISN	137,896	WVXF	132,551	KARK	85,028
KARK	126,279	KWGN	133,965	WBZ	128,942	KABC	82,908
KNBC	123,987	WBZ	132,096	KYW	124,867	WRMD	82,831
WBZ	122,892	WBAL	129,939	KWGN	120,298	WBQC	80,842
WNDU	111,973	WRIC	109,972	WBAL	113,748	WLYH	79,191
WHDH	110,025	WTAE	97,355	WRIC	108,800	WCMH	76,084
KCNC	109,673	WLYH	97,028	WCVB	101,595	WTBS	75,417
KMSP	104,625	WDCA	93,856	WXIA	96,673	KUSA	73,309
KMBC	96,707	KCNC	91,060	KBWB	93,941	KCSO	71,689
WGCL	91,243	KUSA	86,739	KMBC	87,628	WDCA	71,660

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WBRZ	90,903	WPXI	85,199	WTAE	85,552	WUSA	68,005
KUSA	89,457	WIAT	85,015	WPXI	85,134	WPCW	67,918
WMLW	87,735	KABC	82,731	KABC	84,652	WRC	62,500
WCVB	85,724	WBQC	81,013	WBTW	84,179	WTVF	61,766
WCWB	83,424	WBTW	80,360	WWSI	83,359	KFOR	61,539
WPXI	80,851	WLKY	77,265	KMSP	81,732	KSDK	59,292
WCCO	76,301	WNPA	76,847	WTBS	77,098	KPLR	58,790
WQOW	74,436	WBRC	73,699	WFTC	76,237	WSMV	58,486
WFQX	73,341	WTVQ	73,436	WPTA	70,085	CBFT	58,183
WVTM	69,066	WFTC	73,424	WBRC	70,079	KTSB	57,155
KSDK	68,477	WYTV	71,729	WUSA	69,994	KWTV	57,140
WEAU	67,215	WPTA	70,010	WMAQ	65,650	KZSW	56,198
WPTA	67,156	KPLR	68,747	KCNC	65,213	WBBM	54,952
WTTG	67,142	WRC	67,897	WDRB	64,887	WKMG	54,610
KSHB	66,581	WBRZ	66,651	WYTV	64,620	KEFN	52,927
WFTC	65,765	KVAL	65,373	WRC	64,552	KOIN	52,316
WDRB	63,891	KCBS	60,212	WMLW	64,403	W26AX	51,507
WLTV	62,269	CBFT	59,541	WDTA	61,161	WICZ	51,147
CBFT	60,798	WTTG	58,496	KWTV	60,999	WPCB	47,552
WMAR	59,566	KBNT	57,950	WEYI	60,945	KSTC	46,574
WHIO	58,419	WMLW	57,132	WKMG	59,915	WABC	45,525
KBNT	58,299	KTRK	55,189	KTSB	58,492	WHTM	43,139
WNYS	55,666	WGAL	53,421	WSMV	56,999	WEYI	42,527
WPCB	55,593	WWL	53,132	WBBM	56,242	WPMT	40,574
KOIN	51,842	WVLA	52,324	KSDK	50,898	WYDN	40,389
WAMI	50,370	WICZ	51,935	CBFT	50,547	KSHB	40,275
WABC	45,965	KXAS	49,553	WTVQ	48,265	WDAF	40,210
WIXT	44,007	WNYS	47,255	WIBW	43,670	WTTG	39,334
KOMO	42,379	WTAJ	47,073	WPMT	41,007	WBRZ	39,289
KPRC	41,705	KPTV	43,084	WDAF	40,079	WISN	38,278
WDRL	41,395	WDBJ	41,976	WMC	36,773	KPTV	37,487
WFXT	40,708	WAFF	38,282	WTVQ	36,717	WMC	35,179
KCTV	38,317	WBGD	38,182	WTVQ	34,306	KABB	35,142
WISC	37,188	KBHK	36,739	WYOU	34,184	WBRC	33,451
KEZI	36,805	KCTV	35,988	WSLS	32,580	WZMY	31,377
WTTV	35,671	WMUR	34,936	WPSD	32,131	KBHK	30,893
KARE	35,415	WYOU	34,106	WTTV	30,830	CJOH	30,887
WFSB	33,368	KMWB	34,023	WITN	29,501	WBKO	29,777
WSLS	33,270	KTWO	32,464	KDSM	29,185	WIAT	26,114
WBKI	28,769	WNDS	31,386	W24BW	28,272	KTXS	26,089
WANE	28,753	WBKO	29,416	WBBJ	28,222	WGNT	16,866
WCAX	28,684	WMBD	29,348	WHP	27,949	WBTW	15,440
WAVE	28,522	WHP	29,266	KRVU	26,369	WTGL	13,562
WFRV	27,161	WQWQ	25,314	WHOI	25,548	KWOG	12,328
WEUX	27,033	WICU	24,297	WWPX	25,139	KWKB	9,521
KNXT	27,024	KTSF	20,097	WAAY	19,200	WWDP	9,323
WTOC	26,021	WTOC	18,424	KWOG	12,370	WILX	8,752
WTVR	21,546	KDNL	18,151	KNXV	11,590	KFTR	8,000
CHCH	19,926	WJTV	16,382	KTXH	10,970	KWCH	7,296
KSFY	17,630	KFRE	10,191	WJLA	10,247	WSWB	6,322
KJRH	15,352	KWWL	9,215	WTGS	8,479	WNUV	6,157
KIMO	10,641	KWKB	9,072	WNYO	6,992	WUVC	5,753
WKCF	8,752	WRJM	7,645	WMBC	6,711	WICD	5,039
WWTV	8,712	WBXX	7,496	WVAG	6,252	KBSI	4,809
KWTX	6,339	KNVA	6,119	WTVQ	6,113	KTRE	4,576
KTTW	5,942	CHCH	6,086	KMCY	4,795	WDAY	4,320
KXLY	5,174	WGSA	5,434	CKLT	4,079	WUTR	4,284
KRCR	5,090	KQCA	3,813	KBSD	4,003	WJTS	3,028
KDLH	5,065	KTAB	3,316	KWES	3,609	KDTV	2,503
KBJR	5,065	WMDN	3,047	KULR	3,100	WTVX	2,441
KUPT	4,981	KFSM	3,040	WTJR	3,075	KJCT	1,716
WCCU	4,648	WVNS	2,895	WCYB	2,991	KFTH	1,612
KFSM	3,224	KUPX	2,838	KTBN	2,970	KTAL	1,262

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WTVH	2,696		WOGX	2,505		KPOU	2,581		WRBJ	1,223
KTBS	1,240		KCPM	2,274		KIII	2,325		KQEG	1,208
WVSX	869		WTIC	929		WBTR	2,042		CKND	419
CKCO	864		KIFI	906		WICD	1,897		KIDY	393
KUTH	711		CKCO	793		WGKI	1,332		KLWY	334
WWWB*	615		KSAZ	449		KRCA	1,001		KMVT	187
KXLA	499		KLWY	394		WHPX	543		KSCW	151
KNIN	336		KBMY	103		WUVP	252		KNTS	113
KFSN	108		WTPX	44		KFTA	156		KTVZ	96
WNAL	83		WUTB	3		KFSN	63		WPGX	27
						CHEK	49			

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2008		2009	
Station	Distant Subscribers	Station	Distant Subscribers
WGN	42,255,759	WGN	43,618,276
CBUT	1,060,182	CBUT	1,077,163
WPIX	728,563	WPIX	710,239
CKSH	574,641	WFME	659,701
WUAB	442,975	CKSH	587,916
WPHL	442,936	WUAB	586,744
WRNN	414,919	WNBC	465,938
WNBC	400,141	WPHL	428,693
WFME	395,328	KTNC	380,038
KTNC	386,263	WWOR	364,133
CBET	366,380	WSEE	316,474
WWOR	328,269	WRNN	312,034
WSBK	306,432	CBMT	291,905
CBMT	300,019	CBET	271,531
KZSW	287,582	CFTO	242,910
WIS	273,961	WXIX	240,582
WTFX	255,088	WTFX	226,510
WXIX	221,619	CBLT	216,364
CFTO	219,552	KCAL	199,785
KGO	217,881	WWME	198,625
WBNS	215,285	WMEU	196,495
CBLT	213,377	WBNS	194,510
KCAL	206,241	WIS	193,234
WFAA	206,022	WJZ	191,688
KTLA	203,400	WSB	182,740
WVVH	183,686	KTLA	174,889
KICU	179,294	KGO	173,551
WJZ	175,847	KICU	172,532
KCRA	167,899	KZSW	165,249
WTOL	161,039	WPVI	151,661
KODF	155,217	WDIV	148,664
WCAU	154,153	WPSG	146,465
WDIV	147,223	WFAA	143,317
WPSG	143,998	KDKA	139,878
KCOP	142,599	WSJP	136,172
WNYW	136,515	WPRU	136,172
WSEE	135,593	WSJX	136,172
KATV	134,820	KYW	133,181
WBAL	130,943	WNYW	132,804
WSFL	124,146	K07TX	130,325
WHDH	119,642	KTHV	128,232
KDKA	117,830	KTVU	126,401
KNBC	115,862	KATV	126,310
WRIC	103,507	WBAL	119,985
WXTV	101,640	CKWS	113,178
WZDC	101,490	KCOP	112,882
WLKY	100,350	WBZ	112,031
WWMT	97,615	WPCW	108,177
WFLD	91,241	WSYX	107,638
WKRN	90,928	WFPA	96,114
CHLT	90,305	WFLD	95,933
WMLW	88,177	WCVB	94,464
W26AX	87,213	WPXI	92,361
WUNI	84,066	WRC	90,427
WBQC	81,250	WPCB	89,113
WBOC	80,151	WWBT	86,860
WKBD	78,697	WMCN	82,665

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WPTA	72,174	WTAM	82,117
KUSA	71,463	WTAJ	76,025
WSMV	68,455	KOFY	75,510
WSJX	65,806	KEYT	70,001
WSJP	65,806	WSFL	69,641
WPRU	65,806	WRMD	66,912
WVXF	65,806	CBFT	64,558
KCNC	65,476	WALA	62,665
WXSP	64,930	KFOR	58,089
WZZM	64,253	WOTM	57,149
WXYZ	63,362	WXYZ	56,920
WVTM	63,322	WTTG	56,646
WTBS	60,888	WXIA	56,036
WOTV	60,257	WTVB	54,631
WWTV	59,636	KWTV	53,967
CBFT	59,048	WWL	52,688
WOTM	57,415	WYTV	51,771
KMGH	56,922	WHIO	48,631
WSWG	56,502	KDFW	48,437
KFOR	56,399	WKRN	45,686
KSL	54,025	WFTV	45,257
WIAT	50,131	KMGH	44,747
WMC	48,512	WOWK	44,008
W05BN	45,365	WICZ	43,513
WICZ	44,899	KTRK	42,218
WNCT	43,946	WEYI	41,210
KCCI	43,602	WSWG	38,726
WTMJ	43,066	KTWO	37,798
WHTM	42,311	WDAF	36,107
WZMY	38,505	KZSD	33,901
WPSD	37,100	WQEX	33,414
WTGL	35,308	WYMT	31,309
KSAT	33,752	WHBQ	30,885
WYOU	31,765	WBKO	29,893
KOAT	31,733	WKEF	29,317
WLWT	31,603	WBRZ	28,933
KWQC	31,406	WLS	28,736
WBQD	31,266	WPSD	28,677
KPLC	29,622	WAVE	28,561
WITN	28,793	WTGL	27,629
WWPX	28,518	WAFB	26,187
WMTV	27,768	WRCX	24,035
WHME	26,376	KYTX	21,660
WJEB	23,116	WSTR	14,653
WHO	21,841	KCWY	13,703
WCTI	18,179	WJW	13,118
KLTJ	14,782	WTWO	11,192
KSTV	14,226	KMSS	10,513
KSAW	9,789	KSAW	9,867
WTSP	7,056	WNYS	8,571
KNLJ	6,567	KXVO	8,188
KCVU	4,912	WKAG	7,103
WGFL	4,894	KQDS	5,746
WSST	4,704	KGAN	4,612
KFTR	4,133	WFFF	3,951
WLTX	3,985	KLBK	3,902
WSFX	3,905	KTVW	2,803
CKVU	2,975	WXII	2,686
KWBF	2,665	KOBI	2,417
KPXR	2,146	KFYR	2,256
WTVX	1,868	WTVW	1,382
WTVZ	1,786	KOLO	1,156
WPXP	1,690	KSVI	1,142

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WWTO	1,682		KBTX	1,096
KBTX	1,508		KECY	812
KDTN	1,463		WPTZ	416
KFTH	788		KJNP	407
KTMD	788		WWAY	396
KWHB	768		XEPM	356
KPHO	721		CICO32	335
KTVS	451		WLMO	331
KTWB	405		KVEW	213
KWEX	240		KZOU	176
			KVOA	40

APPENDIX C-2: STATIONS SAMPLED FOR SATELLITE ANALYSIS

2000		2001		2002		2003	
Station	Average Distant Subscribers	Station	Average Distant Subscribers	Station	Average Distant Subscribers	Station	Average Distant Subscribers
WGN	9,983,333	WGN	12,033,333	WGN	13,900,000	WGN	15,425,000
WNBC	1,999,234	WNYW	2,277,469	WNYW	2,195,833	WNYW	1,957,830
WNYW	1,983,852	WNBC	2,125,746	WNBC	1,945,437	WABC	1,699,864
WABC	1,869,575	WABC	2,061,607	WABC	1,926,029	WNBC	1,683,084
WCBS	1,767,157	WCBS	1,962,895	WCBS	1,831,223	KTTV	1,629,881
KTTV	1,653,862	KTTV	1,801,082	KTTV	1,788,636	WCBS	1,603,820
KABC	1,638,535	KABC	1,557,440	KABC	1,485,073	KABC	1,336,369
KNBC	1,436,483	KNBC	1,554,040	KNBC	1,450,005	KNBC	1,284,712
KCBS	1,382,769	KCBS	1,496,655	KCBS	1,419,650	KCBS	1,263,718
KTLA	1,105,211	KTLA	1,049,691	WPIX	956,504	WPIX	788,926
WPIX	955,780	WPIX	954,762	KTLA	897,711	KTLA	734,547
KWGN	810,717	KWGN	835,880	KWGN	770,845	KWGN	647,051
WWOR	710,912	WSBK	730,330	WSBK	674,365	WSBK	574,259
WSBK	627,529	WWOR	693,078	WWOR	654,838	WWOR	568,869
KMGH	208,052	KDVR	148,655	KDVR	125,879	KDVR	112,174
WTFX	206,090	KMGH	147,986	KUSA	121,620	KUSA	105,240
KCNC	206,082	KCNC	147,972	KCNC	120,583	KMGH	103,958
KDVR	204,707	KUSA	146,830	KMGH	120,402	KCNC	103,615
KUSA	203,764	WSEE	111,147	WKRN	80,364	WAGA	79,069
KTVU	201,340	WKRN	109,546	WSEE	75,714	WSB	61,988
WSB	198,714	WAGA	40,397	WAGA	67,370	WFLD	59,733
WUSA	188,514	KTVT	30,383	KDFW	57,788	WXIA	58,948
WHDH	187,396	WMAQ	19,226	WGCL	56,622	WGCL	58,840
KOIN	180,541	WBBM	15,246	WSB	54,792	KDFW	58,309
KCRA	180,245	WZTV	9,191	WXIA	54,696	WKRN	54,890
WKRN	165,494	WSMV	9,191	WFAA	47,313	WSEE	52,646
WSEE	162,649	KCPQ	7,145	KTVT	47,284	WLS	51,446
WSVN	48,623	KMBC	6,607	KXAS	43,693	WFAA	46,577
WAGA	12,573	KSDK	6,133	WFLD	42,900	KTVT	45,862
KTVT	10,337	KMOV	6,133	WMAQ	28,462	KXAS	42,368
KXAS	9,822	KDNL	6,133	WZTV	7,434	WFDC	42,110
WSMV	5,533	WSVN	5,839	WTVF	7,434	WDAF	4,087
WZTV	5,533	KGO	5,511	WPXI	6,845	KIRO	3,191
WTVF	5,062	KTVU	5,511	WDAF	5,106	KING	3,191
WTAE	4,513	WRC	4,306	KOMO	5,087	KSTP	2,801
KRON	4,352	WUSA	4,306	KRON	4,182	KGW	1,978
KOMO	4,109	WFXT	3,680	WJLA	3,620	WHDH	1,743
KCPQ	4,040	WBZ	3,680	WCCO	3,119	WCVB	1,743
WBBM	3,913	WFTC	3,116	WCVB	2,526	KTXL	1,357
WMAQ	3,881	WJW	2,875	WKYC	2,321	WCAU	1,349
KMOV	2,908	WKYC	2,875	WEWS	2,321	KPNX	661
WJLA	2,695	WEWS	2,875	KHOU	2,137	KSAZ	661
WRC	2,695	KXTV	2,675	KPDX	2,069	KPHO	661
WCVB	2,284	KTXL	2,675	KATU	2,069	KNXV	661
WFXT	2,284	KPRC	2,670	KYW	1,911	WTHR	517
KSTP	1,617	KTRK	2,670	WKRC	1,713	WCCB	462
WCCO	1,617	KSTU	2,629	WLWT	1,713	KEYE	458
WOIO	1,594	KUTV	2,629	WXIX	1,713	WFXX	415
WEWS	1,594	KTVX	2,629	KUTV	1,647	WESH	399
KSAZ	1,330	KATU	2,537	KTVX	1,647	WLOS	262
KNXV	1,330	KOIN	2,537	KPHO	1,074	WPLG	236
KATU	1,167	KYW	2,352	KSAZ	1,074	WJSU	232
KGW	1,167	WPVI	2,352	WESH	1,031	KGUN	188
KPDX	1,167	WXIX	2,129	WTHR	658	KARK	165
KXTV	1,149	WLWT	2,129	WISH	658	WPSD	160

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KOVR	1,149	KPNX	1,750	WFTS	471	KCCI	129
KTXL	1,149	WCCB	1,646	WPLG	469	KDSM	129
WPVI	1,109	WOFL	1,392	KENS	466	WOTV	117
KYW	1,109	WDIV	1,292	KMOL	466	KOTV	107
WSOC	893	WJBK	1,292	WLOS	288	WLEX	99
WCCB	893	WXYZ	1,292	WHNS	288	KWTX	72
WCNC	893	WWJ	1,292	KGTV	204	WPTZ	66
WWJ	884	KRON	960	XETV	204	WHTM	55
WDIV	884	WXIN	929	KNSD	204	KRDO	36
WJBK	874	WISH	929	WVTM	148	WOWT	29
WKMG	858	WRTV	929	WJSU	148	KMTV	29
WTVJ	706	WNCN	862	WBRC	148	WCTV	28
WFTS	455	WRAZ	861	WZZM	22	KTNV	19
WRTV	424	WTVD	861	WWMT	22	KTVA	8
WISH	424	WFTS	778	WCAX	9	KIMO	8
WTHR	424	WTSP	778	WFLX	8	WMC	6
WXIN	354	WTVJ	655	KRXI	5	WFTX	5
WCPO	299	WFOR	654	KRNV	5	KDEB	4
WXIX	299	WPLG	654	WGAL	4	WLTX	2
WLWT	299	WSPA	550	WHTM	4	WTVR	1
WTVD	274	KASA	312	KSEE	2	WWBT	1
WRAZ	274	KOB	312	KHNL	1	WSAZ	0.3
KENS	185	KOAT	312	WHAS	1	WXXA	0.2
KASA	17	XETV	267	KTNV	1	KTVB	0.1
KRQE	17	WBRC	58	KVVU	1	KMMF	0.1

2004		2005		2006		2007	
Station	Average Distant Subscribers	Station	Average Distant Subscribers	Station	Average Distant Subscribers	Station	Average Distant Subscribers
WGN	17,416,667	WGN	19,775,000	WGN	20,391,667	WGN	21,225,000
WNYW	1,707,902	WNYW	1,486,405	WNYW	1,251,163	WPIX	1,572,083
WABC	1,469,176	WABC	1,244,542	WABC	982,134	WNYW	907,534
WNBC	1,456,993	WNBC	1,208,213	WNBC	967,632	WCBS	707,967
WCBS	1,426,770	WCBS	1,187,968	WCBS	965,459	WNBC	707,621
KTTV	1,403,828	KTTV	1,147,325	KTTV	951,667	WABC	701,836
KABC	1,125,579	KABC	900,720	KABC	788,499	KTTV	692,702
KCBS	1,083,320	KCBS	865,661	KCBS	764,406	KABC	612,427
KNBC	1,082,934	KNBC	858,248	KNBC	744,012	KCBS	607,157
WPIX	694,827	WBZL	638,593	WPIX	699,798	KNBC	585,829
KTLA	587,858	WPIX	588,783	KWGN	463,177	KTLA	556,469
KWGN	565,258	KWGN	494,813	KTLA	432,840	WNUV	383,817
WWOR	496,152	KTLA	489,521	WWOR	402,073	WWOR	326,081
WSBK	487,076	WWOR	461,136	WSBK	384,468	KWGN	325,520
KTNC	159,890	WSBK	441,398	WJAN	302,343	WSBK	317,184
WJAN	124,114	KTNC	209,597	WSFL	262,606	WJAN	304,790
WFDC	109,003	W21AU	206,887	WNUV	251,093	W21AU	198,466
WAMI	103,266	WJAN	142,432	WBZL	234,842	WSFL	152,814
KDVR	88,942	KSWB	137,897	KTNC	222,131	WAMI	134,399
WXFT	88,133	WDLI	136,463	W21AU	211,739	KBWB	118,691
KUSA	83,229	WFDC	131,122	KSWB	197,090	KTNC	115,331
KCNC	82,416	WAMI	125,143	WAMI	132,805	KGO	98,016
KMGH	79,993	WXFT	88,155	WXFT	83,382	WXFT	80,221
W21AU	79,296	KFTR	64,933	KFTR	72,490	KFTR	77,693
WAGA	69,931	KDVR	64,412	WAGA	47,451	WFUT	74,052
WFLD	64,578	WAGA	59,965	WFLD	44,941	WSB	71,448
KFTR	57,840	KUSA	55,410	KDVR	42,148	WAGA	71,052
WSB	53,602	WFLD	55,098	WLBT	41,874	KTVU	71,052
WGCL	51,942	KCNC	53,812	WLS	40,952	KSWB	60,719
WLS	51,342	KMGH	52,317	WCTV	2,655	KPIX	54,092
WXIA	50,910	KBEJ	47,868	KPTV	2,633	WGCL	54,092

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WBBM	46,916		WLS	46,703		KASA	2,152		WXIA	50,658
WSEE	32,600		WSB	44,581		WRC	1,654		WLBT	49,312
WDAF	3,069		WGCL	43,725		KTXL	1,157		KNTV	48,872
KSTP	2,273		KMBC	3,526		WFXT	756		KTFF	33,156
WRC	2,074		KRON	3,316		KFVS	724		KMAX	30,056
WUSA	2,074		KTVU	3,316		WJW	685		KREN	25,858
KSTU	1,351		KRQE	2,038		WWJ	448		WIS	25,257
WRTV	688		WJLA	1,969		WREG	300		WTIC	23,212
KFOR	568		KXTV	1,441		WLWT	288		WPCW	19,253
KNVN	405		WBZ	978		WHNS	280		KODF	16,262
WVTM	325		WEWS	917		WNEG	280		K47DF	15,909
KOLD	325		KTHV	784		WZVN	265		KMSG	15,781
WKMG	322		WTHR	753		KTBS	220		WMUR	10,718
XETV	284		WOAI	603		WICS	155		WFFF	7,868
KYTV	231		KUTV	549		KMTV	101		WVNY	7,868
KCEN	169		WESH	374		WFSB	85		WCAX	7,868
KSPR	165		WLWT	352		WFXS	74		WNNE	7,868
KKTV	160		WTVT	346		WAOW	74		KDVR	5,812
WGRZ	132		WSVN	340		WVAH	66		KCNC	5,223
WPMT	132		KTUL	339		WGRZ	64		KMGH	5,122
KPBI	92		KEYE	335		KHBS	62		KMSP	5,116
WVAH	70		WNCT	310		KPBI	62		KSTP	5,116
KVBC	68		KWTV	282		WLAJ	62		KARE	5,116
WJRT	65		WTEV	275		KQDS	57		KUSA	5,113
WSMH	65		WJXX	275		WCYB	48		KTVD	4,841
KSFY	56		WBBH	271		KFDX	45		WSYX	4,440
WBRE	53		WOTV	258		WSAV	44		WTTT	4,440
WPBN	49		WHAS	252		WTVR	40		WBNS	4,440
WKOW	45		WHTM	174		WWBT	40		WAPT	4,047
KAUZ	42		KRNV	132		KTVB	39		WJTV	4,047
WSYT	40		KCBA	125		KTRV	39		WSEE	2,715
KWQC	37		WOI	119		WROC	38		KSAT	1,263
WRLH	29		WPEC	112		KSNT	38		KABB	1,249
KGET	28		WWTV	69		KMIZ	37		KTBY	943
WGXA	27		KFSM	66		KVLY	34		KIMO	410
WDTN	26		WFXS	63		WMTW	33			
KHON	24		WJFW	63		WRCB	32			
KITV	24		KGBT	50		WTAT	31			
WVIT	21		WSYT	45		WJHG	29			
WAGT	20		WMAZ	37		KPVI	28			
KKCO	17		KHQA	34		WMBD	27			
WISN	14		WYZZ	23		WHOI	27			
WBAL	14		KOAM	21		WEVV	27			
WUPW	13		KRCG	16		KDUH	19			
WLNE	5		WLNE	10		WKBN	16			
WNAC	5		KMVT	8		KHNL	15			
WPGX	4		KIDY	7		KBGF	12			
WMBB	4		WHSV	5		KZTV	3			
WMDN	0.1		KATN	1		KLFY	2			

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2008		2009	
Station	Average Distant Subscribers	Station	Average Distant Subscribers
WGN	21,350,000	WGN	21,575,000
WPIX	1,595,566	WPIX	1,729,147
WNYW	812,437	WNYW	649,212
WCBS	647,609	WCBS	541,938
WABC	646,154	WABC	540,051
WNBC	644,186	WNBC	539,659
KTTV	629,696	KTTV	525,033
KABC	554,061	KTLA	505,915
KCBS	544,496	KABC	462,444
KNBC	532,037	KCBS	455,112
KTLA	527,225	KNBC	450,709
WNUV	498,111	WNUV	286,835
WJAN	305,082	KOFY	271,626
KWGN	288,248	WWOR	259,128
WWOR	285,554	WJAN	244,613
WSBK	278,704	KWGN	239,544
KBWB	247,701	WSBK	230,152
W21AU	182,906	WDCW	213,641
WSFL	158,083	KTFF	192,666
KTFF	136,556	W21AU	171,506
WAMI	134,604	WSFL	169,643
KGO	113,832	WAMI	130,690
KFTR	83,526	KGO	115,709
WSB	82,821	KFTR	94,628
WXFT	80,923	WTHR	91,796
WAGA	75,486	WRTV	89,081
KTVU	75,486	WXFT	84,204
KSWB	61,810	WSB	80,021
KPIX	56,919	KTVU	67,186
WGCL	56,919	WAGA	67,186
WXIA	54,088	KSWB	59,205
WLBT	53,024	WLBT	57,655
KNTV	52,269	WGCL	54,640
KODF	36,939	KPIX	53,373
KMAX	36,271	WXIA	50,244
KREN	30,424	KNTV	48,722
WIS	29,661	KSKN	43,775
WPCW	27,179	KODF	42,166
WTIC	26,114	KMAX	41,116
WMUR	12,474	WPCW	34,519
KSTP	9,358	WTIC	29,583
KMSP	9,358	KRCW	25,204
KARE	9,335	KXVO	21,940
WVNY	8,127	KRNS	18,061
WFFF	8,127	KREN	17,483
WNNE	8,127	WMUR	13,774
WCAX	8,127	WIS	10,792
WTTE	5,211	KMSP	8,991
WSYX	5,211	KARE	8,991
WBNS	5,211	KSTP	8,991
KDVR	4,667	WFFF	8,280
KABB	4,363	WNNE	8,280
KSAT	4,363	WVNY	8,280
KCNC	4,237	WCAX	8,280
WJTV	4,210	KSAT	7,212
WAPT	4,210	WTTE	5,779

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KMGH	4,182		WSYX	5,779
KUSA	4,170		WBNS	5,779
KTVB	3,950		WJTV	4,477
WSEE	2,013		WAPT	4,477
KTBY	1,686		KDVR	3,790
KIMO	1,669		KCNC	3,528
			KMGH	3,489
			KUSA	3,468
			KTVB	3,305
			KBTZ	3,123
			KTBY	2,411
			WTTV	2,291
			WXIN	2,291
			WTVJ	136
			WPLG	136
			WSEE	136

APPENDIX D-1: CABLE REGRESSION MODELS - SPECIFICATIONS & RESULTS

Table D-1a: Poisson Regression Results, Cable, excluding WGN					
Distant Viewers	Coefficient Estimate	Robust Standard Error	Z-score	95% Confidence Interval	
Log of Market Size	0.872175	0.000555	1571.77	0.871088	0.873263
Log of Local Ratings	0.415990	0.001023	406.49	0.413984	0.417996
Time of Day (Quarter Hour)					
2	-0.120177	0.007979	-15.06	-0.135816	-0.104538
3	-0.209521	0.008281	-25.30	-0.225751	-0.193291
4	-0.316858	0.008515	-37.21	-0.333548	-0.300168
5	-0.410919	0.010216	-40.22	-0.430942	-0.390896
6	-0.495184	0.010713	-46.22	-0.516181	-0.474187
7	-0.549764	0.011609	-47.36	-0.572517	-0.527011
8	-0.631132	0.011797	-53.50	-0.654253	-0.608010
9	-0.741795	0.013370	-55.48	-0.768000	-0.715589
10	-0.794846	0.014151	-56.17	-0.822581	-0.767111
11	-0.861734	0.015547	-55.43	-0.892206	-0.831262
12	-0.955314	0.016890	-56.56	-0.988418	-0.922209
13	-1.059758	0.020359	-52.05	-1.099661	-1.019856
14	-1.098736	0.021673	-50.70	-1.141215	-1.056257
15	-1.106988	0.022216	-49.83	-1.150530	-1.063446
16	-1.048026	0.021894	-47.87	-1.090937	-1.005114
17	-1.065967	0.020118	-52.99	-1.105398	-1.026536
18	-1.092494	0.020512	-53.26	-1.132696	-1.052291
19	-1.180271	0.024256	-48.66	-1.227812	-1.132730
20	-1.254635	0.025438	-49.32	-1.304493	-1.204776
21	-1.356204	0.018066	-75.07	-1.391613	-1.320794
22	-1.332528	0.018037	-73.88	-1.367880	-1.297175
23	-0.937970	0.033603	-27.91	-1.003829	-0.872110
24	-0.724168	0.033638	-21.53	-0.790096	-0.658239
25	-0.969476	0.029417	-32.96	-1.027131	-0.911821
26	-0.923996	0.026787	-34.49	-0.976498	-0.871494
27	-0.569176	0.030448	-18.69	-0.628852	-0.509500
28	-0.540730	0.028005	-19.31	-0.595619	-0.485842
29	0.234993	0.014630	16.06	0.206319	0.263668
30	0.165003	0.014485	11.39	0.136614	0.193393
31	0.083977	0.012625	6.65	0.059232	0.108721
32	0.022003	0.011862	1.86	-0.001245	0.045251
33	0.132651	0.010100	13.13	0.112855	0.152447
34	0.154436	0.010028	15.40	0.134781	0.174091
35	0.316005	0.009768	32.35	0.296861	0.335149
36	0.329139	0.009645	34.13	0.310236	0.348042
37	0.399327	0.007105	56.21	0.385402	0.413252
38	0.366201	0.007133	51.34	0.352220	0.380181
39	0.349015	0.007141	48.88	0.335020	0.363010
40	0.336207	0.007136	47.12	0.322221	0.350193
41	0.339956	0.007137	47.63	0.325967	0.353945
42	0.308577	0.007183	42.96	0.294499	0.322656
43	0.315869	0.007295	43.30	0.301570	0.330168
44	0.316531	0.007280	43.48	0.302263	0.330799
45	0.113894	0.007691	14.81	0.098820	0.128969
46	0.103986	0.007611	13.66	0.089069	0.118903

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47	0.131353	0.007593	17.30	0.116470	0.146235
48	0.183082	0.007531	24.31	0.168321	0.197843
49	0.327827	0.007935	41.31	0.312274	0.343380
50	0.307520	0.007951	38.68	0.291937	0.323102
51	0.394804	0.007513	52.55	0.380078	0.409530
52	0.423778	0.007517	56.37	0.409045	0.438512
53	0.407305	0.008165	49.89	0.391302	0.423307
54	0.335605	0.008279	40.53	0.319378	0.351833
55	0.322523	0.008238	39.15	0.306377	0.338669
56	0.335229	0.008248	40.64	0.319063	0.351395
57	0.370110	0.008521	43.43	0.353409	0.386811
58	0.336740	0.008615	39.09	0.319855	0.353625
59	0.364773	0.007976	45.73	0.349140	0.380407
60	0.367794	0.007905	46.53	0.352300	0.383288
61	0.654579	0.006786	96.45	0.641278	0.667880
62	0.646354	0.006777	95.37	0.633071	0.659637
63	0.631024	0.006777	93.11	0.617740	0.644307
64	0.635497	0.006789	93.61	0.622191	0.648803
65	0.646669	0.006642	97.36	0.633651	0.659687
66	0.613536	0.006748	90.93	0.600311	0.626762
67	0.609053	0.006612	92.11	0.596093	0.622013
68	0.618585	0.006538	94.62	0.605771	0.631399
69	0.529270	0.007804	67.82	0.513974	0.544566
70	0.489613	0.007844	62.42	0.474239	0.504987
71	0.525969	0.006973	75.43	0.512303	0.539635
72	0.535287	0.006910	77.47	0.521744	0.548830
73	0.826211	0.006775	121.95	0.812932	0.839490
74	0.845297	0.006744	125.33	0.832078	0.858516
75	0.912611	0.006404	142.50	0.900059	0.925164
76	0.914918	0.006431	142.26	0.902313	0.927523
77	0.996535	0.006414	155.37	0.983964	1.009106
78	1.073958	0.006395	167.93	1.061424	1.086492
79	1.013805	0.006389	158.69	1.001283	1.026326
80	0.972648	0.006405	151.86	0.960095	0.985201
81	1.302548	0.007071	184.22	1.288689	1.316406
82	1.243079	0.007203	172.58	1.228961	1.257196
83	1.248193	0.007207	173.20	1.234068	1.262318
84	1.242684	0.007205	172.49	1.228563	1.256805
85	1.195996	0.007163	166.97	1.181957	1.210034
86	1.142831	0.007204	158.64	1.128711	1.156951
87	1.114252	0.007166	155.49	1.100206	1.128297
88	1.111971	0.007153	155.45	1.097951	1.125991
89	0.910458	0.008459	107.64	0.893880	0.927036
90	0.829840	0.008477	97.90	0.813226	0.846454
91	0.617329	0.008137	75.87	0.601381	0.633276
92	0.503468	0.008229	61.19	0.487340	0.519595
93	0.498086	0.006898	72.21	0.484566	0.511606
94	0.447427	0.006949	64.39	0.433808	0.461047
95	0.342032	0.007097	48.19	0.328123	0.355942
96	0.250145	0.007186	34.81	0.236062	0.264228
Log of Total Fees	1.727816	0.015208	113.61	1.698009	1.757622
Affiliation					
NETWORK	-0.433309	0.001941	-223.23	-0.437114	-0.429505
CW	-0.399039	0.001881	-212.12	-0.402726	-0.395352
INDEPENDENT	0.283036	0.002270	124.70	0.278588	0.287485

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Program Type					
CHILDREN'S SHOW	-0.231424	0.014710	-15.73	-0.260256	-0.202592
CHILDREN'S SPECIAL	-0.653458	0.079455	-8.22	-0.809188	-0.497728
DAYTIME SOAP	0.538955	0.006248	86.26	0.526709	0.551200
FINANCE	-0.298224	0.024180	-12.33	-0.345616	-0.250832
FIRST-RUN SYNDICATION	0.465712	0.004235	109.97	0.457411	0.474012
GAME SHOW	0.503978	0.004598	109.61	0.494966	0.512990
HEALTH	-2.436333	0.081029	-30.07	-2.595146	-2.277520
HOBBIES & CRAFTS	0.529586	0.007296	72.59	0.515286	0.543886
INSTRUCTIONAL	0.860358	0.016288	52.82	0.828434	0.892283
MINI-SERIES	-0.326541	0.060579	-5.39	-0.445273	-0.207809
MOVIE	0.363175	0.004840	75.04	0.353689	0.372661
MUSIC	0.905276	0.007308	123.88	0.890954	0.919599
MUSIC SPECIAL	-0.155643	0.036554	-4.26	-0.227288	-0.083998
NETWORK SERIES	0.574227	0.004643	123.67	0.565126	0.583328
NEWS	0.141150	0.009545	14.79	0.122441	0.159858
OTHER	-0.563994	0.016519	-34.14	-0.596371	-0.531617
PELICULA	0.426029	0.008122	52.45	0.410110	0.441949
PSEUDO-SPORTS	0.970581	0.006031	160.93	0.958760	0.982402
PUBLIC AFFAIRS	-0.026849	0.017688	-1.52	-0.061518	0.007819
RELIGIOUS	-0.473674	0.142868	-3.32	-0.753690	-0.193658
SPECIAL	0.228501	0.009194	24.85	0.210480	0.246522
SPORTING EVENT	0.899552	0.008731	103.03	0.882440	0.916664
SPORTS ANTHOLOGY	1.882594	0.117678	16.00	1.651950	2.113238
SPORTS-RELATED	0.441625	0.011406	38.72	0.419271	0.463980
SYNDICATED	0.634586	0.004055	156.48	0.626637	0.642534
TALK SHOW	0.635346	0.004044	157.09	0.627419	0.643273
TEAM VS. TEAM	-0.727568	0.086422	-8.42	-0.896952	-0.558183
TV MOVIE	0.204388	0.007522	27.17	0.189645	0.219131
Constant	-37.33847	0.288296	-129.51	-37.90352	-36.77342

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Table D-1b: Poisson Regression Results, Cable, WGN only					
Distant Viewers	Coefficient Estimate	Robust Standard Error	Z-score	95% Confidence Interval	
Log of Local Ratings	0.686269	0.004233	162.12	0.677972	0.694565
Time of Day (Quarter Hour)					
2	-0.080406	0.016324	-4.93	-0.112400	-0.048411
3	-0.359667	0.017747	-20.27	-0.394451	-0.324884
4	-0.497385	0.018177	-27.36	-0.533011	-0.461759
5	-0.765216	0.019553	-39.14	-0.803539	-0.726892
6	-0.812416	0.020108	-40.40	-0.851828	-0.773004
7	-0.582140	0.021983	-26.48	-0.625225	-0.539054
8	-0.623191	0.022627	-27.54	-0.667539	-0.578844
9	-0.603196	0.020566	-29.33	-0.643505	-0.562887
10	-0.651115	0.021040	-30.95	-0.692354	-0.609877
11	-0.861812	0.025478	-33.83	-0.911748	-0.811875
12	-0.901699	0.027130	-33.24	-0.954872	-0.848526
13	-1.041204	0.023416	-44.47	-1.087098	-0.995310
14	-1.038693	0.023312	-44.56	-1.084383	-0.993004
15	-1.299511	0.024489	-53.06	-1.347509	-1.251512
16	-1.379884	0.023783	-58.02	-1.426498	-1.333270
17	-0.608839	0.017494	-34.80	-0.643126	-0.574552
18	-0.611700	0.017480	-34.99	-0.645960	-0.577440
19	-0.492999	0.016837	-29.28	-0.525999	-0.459999
20	-0.540642	0.016840	-32.11	-0.573647	-0.507638
21	-0.846486	0.050860	-16.64	-0.946170	-0.746803
22	-0.826113	0.051931	-15.91	-0.927897	-0.724329
23	-0.467286	0.054449	-8.58	-0.574003	-0.360569
24	-0.630001	0.041316	-15.25	-0.710978	-0.549024
25	-3.475537	0.016364	-212.39	-3.507610	-3.443465
26	-3.404026	0.016340	-208.32	-3.436052	-3.371999
27	-0.741281	0.028145	-26.34	-0.796444	-0.686118
28	-0.798246	0.028443	-28.06	-0.853994	-0.742499
29	-1.363090	0.028697	-47.50	-1.419336	-1.306844
30	-1.425426	0.027749	-51.37	-1.479814	-1.371039
33	-1.618958	0.076521	-21.16	-1.768936	-1.468980
34	-1.737331	0.084643	-20.53	-1.903227	-1.571434
35	-1.094730	0.041903	-26.13	-1.176859	-1.012601
36	-1.014656	0.038670	-26.24	-1.090448	-0.938863
37	0.293785	0.020113	14.61	0.254365	0.333205
38	0.240836	0.019450	12.38	0.202715	0.278958
39	0.207184	0.018865	10.98	0.170209	0.244160
40	0.122607	0.019087	6.42	0.085197	0.160016
41	0.040304	0.020733	1.94	-0.000333	0.080940
42	-0.028236	0.020683	-1.37	-0.068773	0.012302
43	0.107294	0.020450	5.25	0.067212	0.147376
44	0.039174	0.020345	1.93	-0.000701	0.079049
45	0.767115	0.018591	41.26	0.730678	0.803552
46	0.715436	0.018580	38.51	0.679019	0.751852
47	0.699311	0.018335	38.14	0.663376	0.735247
48	0.687351	0.018415	37.32	0.651258	0.723445
49	0.174074	0.019467	8.94	0.135919	0.212230
50	0.128866	0.019796	6.51	0.090066	0.167666
51	0.160630	0.019753	8.13	0.121914	0.199345

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52	0.116598	0.019618	5.94	0.078148	0.155048
53	0.076752	0.020352	3.77	0.036863	0.116641
54	0.081248	0.020103	4.04	0.041847	0.120648
55	0.056178	0.020024	2.81	0.016931	0.095425
56	0.012040	0.020206	0.60	-0.027562	0.051643
57	0.382027	0.024150	15.82	0.334693	0.429361
58	0.393211	0.023647	16.63	0.346863	0.439558
59	0.425953	0.023304	18.28	0.380279	0.471627
60	0.394313	0.024456	16.12	0.346380	0.442246
61	0.346820	0.021725	15.96	0.304241	0.389400
62	0.365560	0.021505	17.00	0.323412	0.407707
63	0.378158	0.021228	17.81	0.336553	0.419764
64	0.356937	0.021142	16.88	0.315501	0.398374
65	0.793127	0.016495	48.08	0.760799	0.825456
66	0.800920	0.016364	48.94	0.768847	0.832993
67	0.691664	0.016095	42.97	0.660118	0.723209
68	0.660282	0.016143	40.90	0.628643	0.691922
69	0.358487	0.019563	18.32	0.320144	0.396831
70	0.348256	0.020065	17.36	0.308929	0.387582
71	0.471413	0.016214	29.08	0.439635	0.503191
72	0.391602	0.016285	24.05	0.359684	0.423520
73	-30.20850	0.353848	-85.37	-30.90203	-29.51497
74	-29.57873	0.258612	-114.37	-30.08560	-29.07186
75	-29.79253	0.258602	-115.21	-30.29938	-29.28568
76	-29.74962	0.258603	-115.04	-30.25648	-29.24277
77	0.521220	0.033298	15.65	0.455957	0.586484
78	0.518661	0.029291	17.71	0.461252	0.576069
79	0.557959	0.031804	17.54	0.495624	0.620295
80	0.541495	0.032431	16.70	0.477932	0.605059
81	0.568368	0.032803	17.33	0.504074	0.632661
82	0.533797	0.034330	15.55	0.466512	0.601082
83	0.535454	0.032972	16.24	0.470831	0.600077
84	0.477848	0.032439	14.73	0.414269	0.541426
89	-3.001209	0.387581	-7.74	-3.760854	-2.241565
90	-30.12122	0.152699	-197.26	-30.42051	-29.82194
91	-0.406126	0.022387	-18.14	-0.450002	-0.362249
92	-0.394431	0.022874	-17.24	-0.439263	-0.349599
93	-0.218207	0.022298	-9.79	-0.261910	-0.174503
94	-0.193939	0.022221	-8.73	-0.237491	-0.150388
95	-0.157665	0.023126	-6.82	-0.202991	-0.112338
96	-0.160818	0.023179	-6.94	-0.206249	-0.115388
Program Type					
GAME SHOW	0.267677	0.014642	18.28	0.238980	0.296374
MOVIE	0.786244	0.006714	117.11	0.773085	0.799402
MUSIC	0.265134	0.009621	27.56	0.246277	0.283990
MUSIC SPECIAL	0.295653	0.034812	8.49	0.227423	0.363882
NETWORK SERIES	0.407484	0.070540	5.78	0.269228	0.545740
NEWS	-27.67896	0.060323	-458.85	-27.79719	-27.56073
OTHER	-0.696558	0.009588	-72.65	-0.715349	-0.677766
PSEUDO-SPORTS	-28.93320	0.068094	-424.90	-29.06666	-28.79974
RELIGIOUS	-0.933445	0.050189	-18.60	-1.031815	-0.835076
SPECIAL	-1.825318	0.055831	-32.69	-1.934744	-1.715891
SPORTS-RELATED	-0.502446	0.020191	-24.89	-0.542018	-0.462873
SYNDICATED	0.628540	0.005662	111.02	0.617444	0.639637
TALK SHOW	-0.254648	0.011564	-22.02	-0.277314	-0.231983

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TV MOVIE	0.011411	0.025326	0.45	-0.038227	0.061048
Constant	10.15253	0.015500	655.01	10.12215	10.18291

APPENDIX D-2: SATELLITE REGRESSION MODELS - SPECIFICATIONS & RESULTS

Table D-2a: Poisson Regression Results, Satellite, excluding WGN					
Distant Viewers	Coefficient Estimate	Robust Standard Error	Z-score	95% Confidence Interval	
Log of Market Size	0.5608868	0.0002155	2602.99	0.5604645	0.5613091
Log of Local Ratings	0.2604100	0.0006575	396.06	0.2591213	0.2616986
Time of Day (Quarter Hour)					
2	-0.1394504	0.0059297	-23.52	-0.1510724	-0.1278284
3	-0.2292621	0.0060784	-37.72	-0.2411755	-0.2173488
4	-0.3426285	0.0063398	-54.04	-0.3550542	-0.3302028
5	-0.4027973	0.0065128	-61.85	-0.4155622	-0.3900324
6	-0.5369695	0.0067772	-79.23	-0.5502525	-0.5236866
7	-0.5793282	0.0071159	-81.41	-0.5932751	-0.5653812
8	-0.6893225	0.0076200	-90.46	-0.7042574	-0.6743876
9	-0.7361028	0.0079634	-92.44	-0.7517109	-0.7204948
10	-0.8451524	0.0082747	-102.14	-0.8613706	-0.8289343
11	-0.8853687	0.0084476	-104.81	-0.9019257	-0.8688118
12	-0.9455159	0.0086633	-109.14	-0.9624957	-0.9285362
13	-0.8087494	0.0087060	-92.90	-0.8258129	-0.7916860
14	-0.9083632	0.0090752	-100.09	-0.9261502	-0.8905763
15	-0.9102770	0.0090930	-100.11	-0.9280989	-0.8924551
16	-0.9394721	0.0092019	-102.10	-0.9575074	-0.9214368
17	-0.9222206	0.0093655	-98.47	-0.9405766	-0.9038645
18	-0.9955040	0.0095477	-104.27	-1.0142170	-0.9767909
19	-1.0369880	0.0098230	-105.57	-1.0562400	-1.0177350
20	-0.9849976	0.0096379	-102.20	-1.0038880	-0.9661076
21	-0.9911951	0.0095726	-103.55	-1.0099570	-0.9724332
22	-0.8011954	0.0090752	-88.28	-0.8189825	-0.7834084
23	-0.6469777	0.0086007	-75.22	-0.6638348	-0.6301205
24	-0.5433443	0.0081231	-66.89	-0.5592654	-0.5274233
25	-0.4349914	0.0075702	-57.46	-0.4498287	-0.4201540
26	-0.4634901	0.0075880	-61.08	-0.4783623	-0.4486179
27	-0.3357519	0.0072810	-46.11	-0.3500223	-0.3214815
28	-0.1807152	0.0069645	-25.95	-0.1943655	-0.1670650
29	-0.1913162	0.0064019	-29.88	-0.2038637	-0.1787686
30	-0.2190895	0.0064633	-33.90	-0.2317574	-0.2064216
31	-0.2251963	0.0065499	-34.38	-0.2380339	-0.2123587
32	-0.2166238	0.0065641	-33.00	-0.2294891	-0.2037584
33	-0.1229865	0.0063103	-19.49	-0.1353545	-0.1106184
34	-0.1522514	0.0063642	-23.92	-0.1647250	-0.1397777
35	-0.2740108	0.0063972	-42.83	-0.2865492	-0.2614725
36	-0.2754313	0.0063624	-43.29	-0.2879014	-0.2629611
37	-0.1782149	0.0060054	-29.68	-0.1899852	-0.1664447
38	-0.2028443	0.0060723	-33.40	-0.2147458	-0.1909428
39	-0.2030937	0.0061114	-33.23	-0.2150718	-0.1911155
40	-0.1479711	0.0061410	-24.10	-0.1600072	-0.1359350
41	0.0411851	0.0060052	6.86	0.0294152	0.0529550
42	0.0306800	0.0060398	5.08	0.0188422	0.0425177
43	0.0242842	0.0060819	3.99	0.0123640	0.0362044
44	0.0736769	0.0060469	12.18	0.0618251	0.0855287
45	0.2390156	0.0058398	40.93	0.2275698	0.2504613
46	0.1858956	0.0058924	31.55	0.1743467	0.1974446
47	0.1665130	0.0058714	28.36	0.1550053	0.1780207
48	0.1772413	0.0058754	30.17	0.1657257	0.1887570
49	0.0385330	0.0061159	6.30	0.0265460	0.0505200

Distribution Hearing Exhibit 8002

50	-0.0200384	0.0062090	-3.23	-0.0322078	-0.0078689
51	0.0127955	0.0061524	2.08	0.0007370	0.0248539
52	0.0213067	0.0061000	3.49	0.0093510	0.0332624
53	0.1081711	0.0059772	18.10	0.0964560	0.1198863
54	0.0852218	0.0060428	14.10	0.0733780	0.0970655
55	0.0572830	0.0060321	9.50	0.0454603	0.0691057
56	0.1023386	0.0060388	16.95	0.0905028	0.1141745
57	0.2135183	0.0059453	35.91	0.2018658	0.2251708
58	0.1770567	0.0060189	29.42	0.1652598	0.1888536
59	0.1868186	0.0060011	31.13	0.1750566	0.1985806
60	0.2732752	0.0058973	46.34	0.2617166	0.2848337
61	0.4396065	0.0056967	77.17	0.4284412	0.4507718
62	0.3983808	0.0057742	68.99	0.3870637	0.4096979
63	0.4011729	0.0057499	69.77	0.3899034	0.4124424
64	0.4503261	0.0056923	79.11	0.4391693	0.4614828
65	0.5449507	0.0056764	96.00	0.5338252	0.5560762
66	0.4518393	0.0057841	78.12	0.4405027	0.4631759
67	0.4538057	0.0057919	78.35	0.4424539	0.4651575
68	0.5092249	0.0056532	90.08	0.4981448	0.5203050
69	0.3759025	0.0059083	63.62	0.3643224	0.3874826
70	0.3156887	0.0060005	52.61	0.3039279	0.3274495
71	0.3172969	0.0060531	52.42	0.3054329	0.3291608
72	0.3134073	0.0060854	51.50	0.3014802	0.3253344
73	0.4505167	0.0058846	76.56	0.4389831	0.4620503
74	0.4576609	0.0058679	77.99	0.4461601	0.4691617
75	0.5611180	0.0056849	98.70	0.5499758	0.5722603
76	0.6065136	0.0056751	106.87	0.5953906	0.6176366
77	0.6045348	0.0055564	108.80	0.5936445	0.6154251
78	0.5580951	0.0056173	99.35	0.5470854	0.5691049
79	0.4998148	0.0056451	88.54	0.4887507	0.5108789
80	0.5918934	0.0055520	106.61	0.5810118	0.6027750
81	0.9347108	0.0053750	173.90	0.9241760	0.9452456
82	0.8511767	0.0054304	156.74	0.8405332	0.8618201
83	0.8389330	0.0054499	153.93	0.8282514	0.8496147
84	0.8767739	0.0054501	160.87	0.8660920	0.8874558
85	1.0020640	0.0053805	186.24	0.9915185	1.0126100
86	0.8709783	0.0054268	160.49	0.8603419	0.8816147
87	0.8591610	0.0054313	158.19	0.8485157	0.8698062
88	0.8473339	0.0054196	156.35	0.8367117	0.8579561
89	0.8548043	0.0053943	158.46	0.8442315	0.8653770
90	0.6232019	0.0054738	113.85	0.6124734	0.6339305
91	0.5723968	0.0054531	104.97	0.5617090	0.5830846
92	0.5466145	0.0054432	100.42	0.5359461	0.5572829
93	0.3937665	0.0056650	69.51	0.3826634	0.4048696
94	0.2905059	0.0057956	50.13	0.2791466	0.3018651
95	0.2694129	0.0056197	47.94	0.2583984	0.2804274
96	0.1591626	0.0056557	28.14	0.1480776	0.1702476
Log of Total Fees	7.4182050	0.0064341	1152.95	7.4055950	7.4308160
Affiliation					
NETWORK	0.0781290	0.0020502	38.11	0.0741107	0.0821474
CW	0.2977801	0.0022012	135.28	0.2934659	0.3020943
INDEPENDENT	-1.835852	0.0051320	-357.72	-1.845910	-1.825793
Program Type					
CARTOON	-3.066982	0.0672789	-45.59	-3.198846	-2.935117
CHILDREN'S SHOW	-2.305612	0.0675555	-34.13	-2.438018	-2.173206
CHILDREN'S SPECIAL	-1.427111	0.0694263	-20.56	-1.563184	-1.291038

Distribution Hearing Exhibit 8002

DAYTIME SOAP	-1.249353	0.0670751	-18.63	-1.380817	-1.117888
FINANCE	-1.795189	0.0685602	-26.18	-1.929564	-1.660813
FIRST-RUN SYNDICATION	-1.376969	0.0670769	-20.53	-1.508438	-1.245501
GAME SHOW	-1.529105	0.0670893	-22.79	-1.660597	-1.397612
HEALTH	-0.767646	0.0674647	-11.38	-0.899874	-0.635418
HOBBIES & CRAFTS	-2.338970	0.0679363	-34.43	-2.472123	-2.205817
INSTRUCTIONAL	-1.893966	0.0696537	-27.19	-2.030485	-1.757447
MINI-SERIES	-1.520034	0.0728487	-20.87	-1.662815	-1.377253
MOVIE	-2.330217	0.0671243	-34.71	-2.461778	-2.198656
MUSIC	-0.867401	0.0673842	-12.87	-0.999472	-0.735331
MUSIC SPECIAL	-1.539222	0.0679744	-22.64	-1.672449	-1.405994
NETWORK SERIES	-1.381010	0.0670600	-20.59	-1.512445	-1.249575
NEWS	-1.754218	0.0670535	-26.16	-1.885641	-1.622796
OTHER	-1.887537	0.0670994	-28.13	-2.019049	-1.756025
PELICULA	-0.910123	0.0671602	-13.55	-1.041755	-0.778492
PLAYOFF SPORTS	-0.566080	0.0672283	-8.42	-0.697845	-0.434314
PSEUDO-SPORTS	-0.932954	0.0675238	-13.82	-1.065298	-0.800609
PUBLIC AFFAIRS	-1.764006	0.0673124	-26.21	-1.895936	-1.632076
RELIGIOUS	-2.643325	0.0677570	-39.01	-2.776126	-2.510524
SPECIAL	-1.653964	0.0671639	-24.63	-1.785602	-1.522325
SPORTING EVENT	-0.756628	0.0671023	-11.28	-0.888146	-0.625110
SPORTS ANTHOLOGY	-1.743969	0.0723490	-24.10	-1.885771	-1.602168
SPORTS-RELATED	-1.413191	0.0672006	-21.03	-1.544901	-1.281480
SYNDICATED	-1.603265	0.0670448	-23.91	-1.734670	-1.471859
TALK SHOW	-1.151635	0.0670410	-17.18	-1.283033	-1.020237
TEAM VS. TEAM	-0.760366	0.0670863	-11.33	-0.891853	-0.628879
TV MOVIE	-1.993555	0.0673228	-29.61	-2.125505	-1.861604
Constant	-136.1714	0.1357	-1003.8100	-136.4373	-135.9055

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Table D-2b: Poisson Regression Results, Satellite, WGN only					
Distant Viewers	Coefficient Estimate	Robust Standard Error	Z-score	95% Confidence Interval	
Log of Local Ratings	1.203598	0.0065295	184.33	1.190800	1.216395
Time of Day (Quarter Hour)					
2	-0.2101565	0.0504403	-4.17	-0.3090176	-0.1112954
3	-0.4092755	0.0565674	-7.24	-0.5201454	-0.2984055
4	-0.2864551	0.0564609	-5.07	-0.3971165	-0.1757937
5	-0.1282850	0.0529639	-2.42	-0.2320924	-0.0244777
6	-0.1828616	0.0562010	-3.25	-0.2930134	-0.0727097
7	-0.1533706	0.0532672	-2.88	-0.2577724	-0.0489687
8	-0.1534200	0.0556191	-2.76	-0.2624314	-0.0444086
9	-0.4421526	0.0661962	-6.68	-0.5718948	-0.3124104
10	-0.4369161	0.0677123	-6.45	-0.5696298	-0.3042025
11	-0.4005226	0.0673446	-5.95	-0.5325156	-0.2685296
12	-0.3432658	0.0675273	-5.08	-0.4756169	-0.2109147
13	-0.2909204	0.0732822	-3.97	-0.4345509	-0.1472899
14	-0.2988816	0.0736464	-4.06	-0.4432259	-0.1545373
15	-0.5555854	0.0841388	-6.60	-0.7204945	-0.3906763
16	-0.7592432	0.0872260	-8.70	-0.9302031	-0.5882833
17	-0.9324850	0.0758139	-12.30	-1.0810780	-0.7838925
18	-1.1204570	0.0810837	-13.82	-1.2793780	-0.9615359
19	-1.1241300	0.0783397	-14.35	-1.2776730	-0.9705875
20	-1.0538880	0.0761231	-13.84	-1.2030870	-0.9046896
21	0.6162788	0.0482236	12.78	0.5217623	0.7107953
22	0.5045045	0.0478156	10.55	0.4107877	0.5982213
23	0.7193469	0.0473420	15.19	0.6265582	0.8121356
24	0.5928693	0.0472440	12.55	0.5002727	0.6854658
25	-0.8284630	0.1034381	-8.01	-1.0311980	-0.6257281
26	-0.9177562	0.1028203	-8.93	-1.1192800	-0.7162321
27	-0.9719855	0.1002338	-9.70	-1.1684400	-0.7755309
28	-1.1700240	0.1049428	-11.15	-1.3757080	-0.9643396
29	-0.9079517	0.0829811	-10.94	-1.0705920	-0.7453116
30	-0.8468858	0.0810443	-10.45	-1.0057300	-0.6880419
31	-0.7343836	0.0724685	-10.13	-0.8764193	-0.5923479
32	-0.7744146	0.0737654	-10.50	-0.9189922	-0.6298371
33	-0.1719609	0.0628276	-2.74	-0.2951006	-0.0488211
34	-0.0991128	0.0619137	-1.60	-0.2204614	0.0222357
35	-0.3847866	0.0729333	-5.28	-0.5277332	-0.2418400
36	-0.6179727	0.0847823	-7.29	-0.7841429	-0.4518026
37	-0.6065340	0.0797250	-7.61	-0.7627921	-0.4502759
38	-0.5596649	0.0796143	-7.03	-0.7157061	-0.4036237
39	0.0053162	0.0718199	0.07	-0.1354483	0.1460806
40	-0.0947752	0.0738166	-1.28	-0.2394531	0.0499027
41	-0.0045084	0.0525884	-0.09	-0.1075798	0.0985629
42	-0.1094249	0.0533612	-2.05	-0.2140110	-0.0048388
43	-0.0468459	0.0557171	-0.84	-0.1560493	0.0623575
44	-0.0557161	0.0570780	-0.98	-0.1675869	0.0561547
45	0.0510877	0.0602760	0.85	-0.0670511	0.1692266
46	-0.0879846	0.0624779	-1.41	-0.2104390	0.0344697
47	-0.1257885	0.0576042	-2.18	-0.2386906	-0.0128864
48	-0.1466248	0.0581651	-2.52	-0.2606263	-0.0326233
49	-0.1248052	0.0505998	-2.47	-0.2239790	-0.0256314

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50	-0.1532537	0.0514250	-2.98	-0.2540449	-0.0524626
51	-0.2022768	0.0498010	-4.06	-0.2998850	-0.1046686
52	-0.1610863	0.0504771	-3.19	-0.2600197	-0.0621529
53	0.4556680	0.0407675	11.18	0.3757652	0.5355709
54	0.3983312	0.0407422	9.78	0.3184779	0.4781846
55	0.4058026	0.0406494	9.98	0.3261313	0.4854740
56	0.4272559	0.0408456	10.46	0.3472000	0.5073119
57	0.0029705	0.0457267	0.06	-0.0866521	0.0925931
58	0.0287412	0.0458861	0.63	-0.0611939	0.1186763
59	0.1342010	0.0451964	2.97	0.0456177	0.2227842
60	0.2065448	0.0457684	4.51	0.1168404	0.2962491
61	0.1459567	0.0443507	3.29	0.0590309	0.2328825
62	0.2025042	0.0442200	4.58	0.1158347	0.2891738
63	0.3220569	0.0442928	7.27	0.2352446	0.4088692
64	0.2755792	0.0448013	6.15	0.1877702	0.3633882
65	0.2021205	0.0446169	4.53	0.1146730	0.2895680
66	0.2591641	0.0446707	5.80	0.1716112	0.3467171
67	0.3726409	0.0452402	8.24	0.2839718	0.4613099
68	0.2948952	0.0457032	6.45	0.2053185	0.3844719
69	1.0543110	0.0388160	27.16	0.9782328	1.1303890
70	0.9837541	0.0389375	25.26	0.9074381	1.0600700
71	1.1050640	0.0385574	28.66	1.0294930	1.1806350
72	0.9504542	0.0384342	24.73	0.8751245	1.0257840
73	-0.1355646	0.0428925	-3.16	-0.2196323	-0.0514969
74	-0.2747149	0.0431601	-6.37	-0.3593070	-0.1901227
75	0.4865738	0.0390017	12.48	0.4101318	0.5630157
76	0.5104221	0.0391554	13.04	0.4336790	0.5871653
77	-0.4500347	0.0501280	-8.98	-0.5482838	-0.3517855
78	-0.4596943	0.0500591	-9.18	-0.5578083	-0.3615804
79	-0.5080729	0.0498469	-10.19	-0.6057711	-0.4103748
80	-0.5789756	0.0501815	-11.54	-0.6773296	-0.4806217
81	-0.0832105	0.0459237	-1.81	-0.1732193	0.0067982
82	-0.2161649	0.0463923	-4.66	-0.3070921	-0.1252377
83	-0.1346349	0.0464580	-2.90	-0.2256910	-0.0435789
84	-0.1752322	0.0461461	-3.80	-0.2656769	-0.0847875
85	0.3182467	0.0473795	6.72	0.2253846	0.4111089
86	0.0731329	0.0488195	1.50	-0.0225515	0.1688172
87	0.0463067	0.0487695	0.95	-0.0492797	0.1418930
88	0.0636311	0.0496605	1.28	-0.0337017	0.1609639
89	0.4704274	0.0384946	12.22	0.3949793	0.5458755
90	0.4774909	0.0385691	12.38	0.4018969	0.5530850
91	0.4320197	0.0385568	11.20	0.3564497	0.5075897
92	0.4081848	0.0385354	10.59	0.3326568	0.4837129
93	-0.5808794	0.0505186	-11.50	-0.6798940	-0.4818647
94	-0.5974963	0.0523727	-11.41	-0.7001449	-0.4948478
95	-0.4241034	0.0518188	-8.18	-0.5256663	-0.3225405
96	-0.3807551	0.0521197	-7.31	-0.4829079	-0.2786023
Program Type					
CHILDREN'S SHOW	1.550674	0.080323	19.31	1.393244	1.708105
CHILDREN'S SPECIAL	1.522683	0.109490	13.91	1.308086	1.737279
FINANCE	0.989022	0.142093	6.96	0.710525	1.267519
FIRST-RUN SYNDICATION	1.456221	0.071385	20.40	1.316310	1.596133
GAME SHOW	-0.731374	0.074200	-9.86	-0.876803	-0.585945
HEALTH	-24.99980	0.114680	-218.00	-25.22457	-24.77503
MOVIE	0.698466	0.067484	10.35	0.566200	0.830733

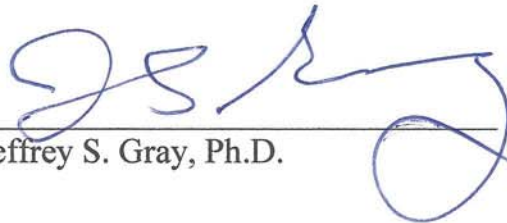
Distribution Hearing Exhibit 8002

MUSIC	0.121895	0.082283	1.48	-0.039376	0.283166
MUSIC SPECIAL	-25.15674	0.099195	-253.61	-25.35116	-24.96232
NETWORK SERIES	0.850586	0.068594	12.40	0.716145	0.985028
NEWS	-1.020991	0.068029	-15.01	-1.154325	-0.887658
OTHER	0.685775	0.069934	9.81	0.548706	0.822843
PSEUDO-SPORTS	-26.45547	0.068788	-384.59	-26.59029	-26.32065
PUBLIC AFFAIRS	0.977451	0.140822	6.94	0.701445	1.253457
RELIGIOUS	1.053915	0.080449	13.10	0.896238	1.211591
SPECIAL	-0.551380	0.091689	-6.01	-0.731086	-0.371673
SPORTS-RELATED	0.618757	0.074766	8.28	0.472218	0.765296
SYNDICATED	0.437964	0.067067	6.53	0.306515	0.569414
TALK SHOW	-0.510248	0.067585	-7.55	-0.642712	-0.377784
TEAM VS. TEAM	0.732919	0.067444	10.87	0.600732	0.865107
TV MOVIE	-26.22471	0.074092	-353.95	-26.369920	-26.07949
Constant	4.672320	0.0754958	61.89	4.524351	4.820289

DECLARATION OF JEFFREY S. GRAY

I declare under penalty of perjury that the foregoing testimony is true and correct,
and of my personal knowledge.

Executed on August 22, 2016



Jeffrey S. Gray, Ph.D.

Certificate of Service

I hereby certify that on Thursday, April 05, 2018 I provided a true and correct copy of the Written Direct Testimony of Jeffrey S. Gray, Ph.D., filed August 22, 2016. to the following:

Independent Producers Group (IPG), represented by Brian D Boydston served via Electronic Service at brianb@ix.netcom.com

Devotional Claimants, represented by Benjamin S Sternberg served via Electronic Service at ben@lutzker.com

Signed: /s/ Lucy H Plovnick